



Digital Photo Metadata Standard

Version 1.0

User Guide

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II. Introduction

A. Guiding principles for using the standard

- The standard applies to pictorial digital images that are either born digital or created by scanning. It does not apply to digital images of drawings, maps, or texts, or to satellite images.
- The standard identifies the full scope of metadata elements that a project in the NPS might use to describe, manage and preserve digital images. A specific project will select and implement a subset of the elements that will fulfill its requirements.
- The standard identifies which elements are:
 - **Mandatory** – this element should always be completed
 - **Mandatory if applicable** – this element should be completed if it applies to the image and the information is readily available
 - **Optional** – this element may be completed if the end user chooses
- An imaging initiative that chooses to comply with this standard should include all “Mandatory” elements in every record. Compliance with the standard is voluntary. There is no plan to require any NPS imaging initiative to comply with this standard.
- Metadata has been grouped into four categories that are typical for metadata systems.
 - **Administrative metadata** – those elements used to manage the image or the record such as record number, the date the record was created or revised, record security, and/or copyright info
 - **Descriptive metadata** – those elements used to describe the creation of and content of the image such as title, photographer, subject
 - **Technical metadata** – those elements used to describe the technical properties of the digital image such as file size and format, resolution, pixel width and height
 - **Local extension metadata** – elements that have been defined for a particular NPS local project and are not universally applicable across all NPS projects.
- The standard stands independent of any technology that may be used to manage and serve images and metadata. It is assumed that the metadata will probably be kept in an information system, local database or spreadsheet, or in meta tags in a Web page.
- In determining the appropriateness of any particular metadata element, NPS staff are encouraged to be mindful that the ultimate purpose of the metadata record is to preserve America’s information heritage, i.e. the image, for generations to come.

B. The Seven Mandatory Elements

The Digital Photo Metadata Standard specifies that seven metadata elements should be considered mandatory.

It was determined that these are the minimum number of elements required to enable an NPS project to access, interpret and manage an image.

The first three elements describe who or what is in the image and where and when it was taken.

The Alpha Code is probably the single most useful element in the NPS for identification and for linking records in different computer systems.

The final three are necessary in order to comply with federal laws and NPS policies including issues such as copyright, privacy, sensitive information, and security.

Title - who or what is in the image

Image_Content_Place – where the image was taken

Image_or_Set_Create_Date – when the image was taken

NPS_Unit_Alpha_Code – (e.g. Park code) used for managing or filtering groups of records and/or for linking systems

Metadata_Access_Constraints – who may view the record/image (e.g. public, staff only)

Constraints_Information – explanation of restrictions, if any, on access/use of the image or the metadata

Contact_Information => Contact Organization – who to contact for further information

Although these elements are considered Mandatory, it is understood that they may not always apply. For example, some images, such as those created for national programs, may not have an NPS_Unit_Alpha_Code. Constraints_Information provides a place to describe any and all restrictions ranging from copyright to security. However, if there are no restrictions on access to or use of an image, then the Constraints_Information element may be blank.

Staff should take a pragmatic approach to completing mandatory metadata elements. If it applies, use it. If it does not apply, move on to the next one.

C. Why is the metadata important?

Preserving America's Information Heritage

Everyone knows that the NPS preserves America's cultural and natural heritage. Fulfilling this responsibility often entails preserving America's *information heritage* – such as images of NPS resources.

Common Terminology

Metadata provides a common terminology for understanding, discussing and sharing images. Good metadata helps image seekers better understand an image and make judgments about its value for a particular use. An image seeker may be a member of the public, another NPS employee, or even yourself at a later point in time. Being able to understand and discuss images and their properties adds value to an image and increases its usefulness. Finally, structured metadata enables systems like NPS Focus, FMSS, and the NR Data Store to organize, archive, and share images in computerized systems.

Metadata as Surrogate

Imagine that you are sitting with a friend looking at a photo album. What are the kinds of questions usually asked? Who or what is that? Where was this picture taken? When was this picture taken? Who took that picture and why? How were you able to get that shot?

The metadata record is the surrogate for someone being able to sit with you and ask you these questions in person.

Look at the example below. Typical questions might be: Who's mom is that? Where was this picture taken? When was this picture taken? Who took that picture and why is everyone in white except the one kid not facing the camera?

Notice that the minimal "metadata" on the back of the photo is insufficient to answer most of these questions.



Lost Images

Ten years from now and a hundred miles away, a perfect stranger should be able to look at a metadata record and be able to interpret an image and put it into its spatial and chronological context.

A digital image may be stored on a server or in a digital archive. !!! But, if an end user can not locate and interpret the image based on the metadata record, then it is a “lost image.”

Preserving NPS’ Institutional Investment

Think of all the money spent buying and maintaining photographic equipment, and the work time spent taking photos over the duration of a NPS employee’s career. Ask yourself the following question: What if Employee X quit or moved on tomorrow? Would all the slides, photos and digital images Employee X took over the years and stored in Employee X’s office and computer be interpretable? If Employee X documented the images with good metadata, there is a much better chance that the images would still be useful in their absence. Without adequate metadata, the images would be much less valuable and run the risk of becoming “lost,” squandering the time and money spent to acquire them.

AN IMAGE WITH NO CONTEXT IS THE SAME AS A LOST IMAGE!

Creating good metadata is preserving America’s information heritage!

II. Digital Photo Metadata Standard – Summary View

Below is a summary or bird's-eye view of the all of the metadata elements in the standard. When an element is indented, it means it is a subelement (child element) of the metadata element above it (parent element). The Detailed View with definitions follows below.

Red text (M) = mandatory (required for every image metadata record)

Blue text (MA) = mandatory if applicable (required if information is available)

Black text = optional (metadata creator chooses to use or not use element)

Teal text (MA) = if the optional parent element is used, then this child element is mandatory

(c) = compound; a container metadata element that serves to create a cluster of subelements, but does not have its own data

(R) = Repeatable; if placed next to a compound element, the whole cluster is repeatable

NPS_Digital_Photo Information (c)
 Administrative_Information (c) (O)
 Master_Metadata_ID
 Related_Identifier (c) (R)
 Related_ID_Name (MA)
 Related_ID_Value (MA)
 Contact_Information (c) (MA) (R)
 Contact_Name (c) (MA)
 Contact_Person
 Contact_Organization (M)
 Contact_Role (R)
 Contact_Position
 Contact_Address (c) (R)
 Address_Type
 Address (MA)
 City (MA)
 State_or_Province (MA)
 Postal_Code (MA)
 Country
 Contact_Voice_Telephone (R)
 Contact_TDD/TTY_Telephone
 Contact_Facsimile_Telephone
 Contact_Electronic_Mail_Address (R)
 Hours_of_Service
 Contact_Instructions (R)
 Metadata_Create_Date
 Metadata_Update_Date (R)
 Metadata_Access_Constraints (M) (R)
 Metadata_Use_Constraints (R)
 Image_Access_Constraints (R)
 Image_Use_Constraints (R)

 Constraints_Information (c) (M)

- Copyright_Information (c)
 - Copyright_Date
 - Copyright_Holder
 - Copyright_Description
- Retention_Information (c)
 - Retention_Period (MA)
 - Retention_Description (MA)
- Descriptive_Information (c) (M)
 - Title (M)
 - Alternate_Title (R)
 - Contributor (c) (R)
 - Name_Information (MA)
 - Role
 - Affiliation
 - Information_Type
 - Image_or_Set_Create_Date (M)
 - Image_or_Set_Update_Date (R)
 - Publication_Date
 - Publisher
 - Size_and_Format
 - Online_Linkage
 - Abstract (R)
 - Controlled_Terms (c) (R)
 - Controlled_Term_Thesaurus (MA)
 - Controlled_Term (MA)
 - Uncontrolled_Term (c) (R)
 - Image_Content_Date (c) (R)
 - Begin_Date (MA)
 - End_Date
 - Image_Content_Place (c) (M, R)
 - Place_Description (M)
 - Bounding_Coordinates(c)
 - West
 - East (MA)
 - North (MA)
 - South
 - Datum (MA)
 - UTM_Bounding_Coordinates (c)
 - UTM_West
 - UTM_East (MA)
 - UTM_North (MA)
 - UTM_South
 - UTMZone (MA)
 - UTMDatum
 - Comments (R)
 - Internal_Comments (R)
 - Image_Provenance
 - Intended_Audience
 - NPS_Unit_Information (c) (MA) (R)
 - NPS_Unit_Alpha_Code (MA)
 - NPS_Unit_Name
 - NPS_Unit_Type
 - NPS_Organization_Code
 - NPS_Unit_Previous_Code
 - NPS_Unit_Previous_Name
 - NPS_Parent_Unit_Code
 - NPS_Parent_Unit_Name
 - Source_Information (c) (R)

Source_Description
 Source__Physical_Location
 Source_Digital_Location
 Related_Collection (c) (R)
 Citation_Information (c)
 Title (MA)
 Contributor (c) (R)
 Name_Information
 Role
 Affiliation
 Information_Type
 Publication_Date
 Publisher
 Other_Citation_Details (R)
 Online_Linkage (R)
 Related_Collection (c) (R)
 Citation_Information (c)
 Title
 Contributor (c) (R)
 Name_Information
 Role
 Affiliation
 Information_Type
 Publication_Date
 Publisher
 Other_Citation_Details (R)
 Online_Linkage
 Related_Collection (c)
 Citation_Information (repeat cluster)
 Related_Identifier (c) (R)
 Related_ID_Name
 Related_ID_Value
 Related_Identifier (c) (R)
 Related_ID_Name
 Related_ID_Value
 Related_Resource (c) (R)
 Citation_Information (c)
 Title (MA)
 Contributor (c) (R)
 Name_Information
 Role
 Affiliation
 Information_Type
 Publication_Date
 Publisher
 Other_Citation_Details
 Online_Linkage
 Related_Collection (c)
 Citation_Information (c)
 Title
 Contributor (c) (R)
 Name_Information
 Role
 Affiliation
 Information_Type
 Publication_Date
 Publisher
 Other_Citation_Details

- Online_Linkage
 - Related_Collection (c)
 - Citation_Information *(repeat cluster)*
 - Related_Identifier (c)
 - Related_ID_Name
 - Related_ID_Value
- Related_Identifier (c)
 - Related_ID_Name
 - Related_ID_Value
- Related_System (c) (R)
 - Related_System_Name (MA)
 - Related_System_Short_Name
 - Related_System_Identifier
 - Related_System_Link
 - Related_System_Description
 - Related_Contact (c)
 - Contact_Information (c)
 - Contact_Name (c) (MA)
 - Contact_Person
 - Contact_Organization (MA)
 - Contact_Role (R)
 - Contact_Position
 - Contact_Address (c)
 - Address_Type
 - Address (MA)
 - City (MA)
 - State_or_Province (MA)
 - Postal_Code (MA)
 - Country
 - Contact_Voice_Telephone
 - Contact_TDD/TTY_Telephone
 - Contact_Facsimile_Telephone
 - Contact_Electronic_Mail_Address
 - Hours_of_Service
 - Contact_Instructions
- Coded_Metadata (c) (R)
 - Coded_Metadata_Source
 - Coded_Metadata_Content
- Technical_Information (c)
 - Image_Information (c) (R)
 - Image_Caption
 - Image_Description
 - Multiple_Image_Reference_Name_or_Part_Number
 - Primary_Image_Technical_Information (c)
 - Image_Data (c)
 - File_Name (MA)
 - File_Location
 - File_Type
 - File_Size
 - Compression
 - Image_Width
 - Image_Height
 - Resolution_Unit
 - X_Resolution
 - Y_Resolution
 - Bitdepth
 - Colorspace

- Digital_Capture_Technical_Information (c)
 - Manufacturer
 - Model
 - Software
 - Date_Time_of_Original
 - Date_Time_Digitized
 - FNumber
 - Exposure_Time
 - Exposure_Bias
 - Subject_Distance
 - Metering_Mode
 - ISO_Speed
 - Focal_Length
 - Flash
 - Orientation
 - Compressed_Bits_per_Pixel
 - Shutter_Speed
 - Aperture_Value
 - EXIF_Version
- GPS_Capture (c)
 - GPS_Version_ID
 - GPS_Longitude
 - GPS_Latitude
 - GPS_Altitude
 - GPS_Destination_Longitude
 - GPS_Destination_Latitude
 - GPS_Destination_Bearing
 - GPS_Destination_Distance
 - GPS_Map_Datum
 - GPS_Image_Direction
 - GPS_Date_Stamp
 - GPS_Time_Stamp
 - GPS_UTM_East
 - GPS_UTM_North
 - GPS_UTMZone
 - GPS_DOP
 - GPS_Fix_Type
- Modified_Image_Technical_Information (c)
 - Image_Data (c)
 - File_Name
 - File_Location
 - File_Type
 - File_Size
 - Compression
 - Image_Width
 - Image_Height
 - Resolution_Unit
 - X_Resolution
 - Y_Resolution
 - Bitdepth
 - Colorspace
- Thumbnail_Information (c)
 - Image_Data (c)
 - Thumbnail_File_Name
 - Thumbnail_File_Type
 - Thumbnail_File_Description
- Change_History (c) (R)

Date_Processed
Processing_Agency
Processing_Rationale
Processing_Actions
Processing_Software
Local_Extension_Information
Local_Profile_Name
NPS Focus Digital Library *[sample of Local_Profile_Name that has been completed]*
RecordOwner
MrSID
Server
Catalog
Folder
File

Administrative_Information

Mandatory

Not repeatable

Compound element (no data)

Administrative metadata are those elements used to manage the image or the record such as record number, the date the record was created or revised, record security, and/or copyright information.

Administrative metadata does not include the elements used to describe the content of an image, who took the image or how. These are listed under Descriptive_Information.

When using the User Guide, you can identify the metadata under Administrative Information by seeing this header at the top of the page.

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Administrative_Information =>

Master_Metadata_ID

Optional

Not repeatable

Free text

This is a computer-generated **globally unique identifier (GUID)** that is used as a primary key (e.g. record number) that may be assigned to the metadata record to uniquely identify it independently of any particular information system or technology.

The advantage of a GUID is that a unique number identifier will remain in the metadata of a record that is passed between systems. A system generated record number that is not part of the metadata is typically lost when a record is exported from one system and imported into another.

Use this element **ONLY** if the record number is formatted as a GUID.

Use Related_Identifier for other types of local or system generated record numbers

Examples:

23912 (NR-GIS Metadata and Data Store *NPS Metadata Master ID*)

GATE-015ecb5b91f84547bfb266daf6c6d74e (NPS Focus image GUID)

Related_Identifier

Related_ID_Name | Related_ID_Value

Optional

Repeatable

Compound element (no data)

The **Related_Identifier** cluster of metadata occurs in several places in the metadata standard. When it is located under Administrative_Information, it is used for numbers associated with the record and/or the digital photo(s) described by the record.

This may include the record number (usually assigned by the computer system) or an accession number or job number that has been assigned to the image.

For numbers associated with OTHER systems such as a related PMIS budget request or related LCS or FMSS asset record, use Descriptive_Information => Related_System below.

The Related_Identifier cluster consists of two parts: a textual description of what type of number it is and the number itself.

=> Related_ID_Name

Mandatory if parent element is used
Repeatable through parent element
Free text data

A textual description of the number such as who or what created the numbering system, e.g. NPS Focus record number, ANCS+ accession number, HFC job number.

=>Related_ID_Value

Mandatory if parent element is used
Repeatable through parent element
Free text data

The actual record, accession, or job number that was assigned by the person or system entered in Related_ID_Name.

Examples:

Related_ID_Name: NPS Focus Digital Library record number

Related_ID_Value: 15195

Related_ID_Name: HFC Graphics management number

Related_ID_Value: LC-USZC2-1758

Related_ID_Name: E-TIC address

Related_ID_Value: 2105

Contact_Information

[Contact_Name](#) | [Contact_Role](#) | [Contact_Position](#) | [Contact_Address](#) |
[Contact_Voice_Telephone](#) | [Contact_TDD/TTY_Telephone](#) | [Contact_Facsimile_Telephone](#) |
[Contact_Electronic_Mail_Address](#) | [Hours_of_Service](#) | [Contact_Instructions](#)

Mandatory (Contact_Organization used once)

Optional (all other elements)

Repeatable

Compound element (no data)

The Contact_Information cluster indicates whom to contact for further information about the image and/or the metadata record. If there are multiple contacts, the Contact_Information cluster can be repeated and the Contact_Role element revised for each type of contact.

Every image and record should provide at least one Contact_Organization. The Contact_Organization is usually a park or program name, often followed by a smaller division or department within the unit.

This Contact_Information may be used by NPS staff, other government agencies, or the general public now *or twenty years from now*. If you do not have the resources to maintain a current personal name, consider entering only the organization name and/or the position (e.g. GIS specialist).

Use your judgment when selecting which Optional elements to complete. For example, if the Contact's office is in a location that is not open to the general public, you may wish to leave the Contact_Address elements blank on metadata records that will display to the public.

Contact_Name Mandatory if parent element is used Repeatable through parent element Compound element (no data)	A compound element for containing the name(s) of the person and/or organization to contact for further information about the image or metadata record.
=> Contact_Person Optional Not repeatable Free text	The personal name of the individual to contact for further information. NOTE: Only add a Contact_Person if your division plans to update the record every time there is a staff change. Example: Brian Diethorn
=> Contact_Organization Optional Not repeatable Free text	This will usually be a park, program, regional office or other NPS administrative office. For large units, add an additional division/department name. Examples: <i>Yellowstone National Park, Facilities Management Division.</i>

	<i>Natural Resources Program, Natural Resources Information Division, NR GIS Program Office.</i>										
Contact_Role Optional Repeatable Controlled vocabulary	<p>Describes the reasons or conditions for which someone can contact this person/organization. Select from the following list of controlled terms.</p> <table border="1"> <tr> <td>General Contact</td><td>Use this contact for any and all communication related to the image(s) or metadata record.</td></tr> <tr> <td>Image Data Steward</td><td>Use this contact for any communication about the image including information about the original photography or scanning.</td></tr> <tr> <td>Metadata Steward</td><td>Use this contact for any communication concerning the metadata record including requests for corrections or updates</td></tr> <tr> <td>Image Access/Use Contact</td><td>Use this contact for any communication about gaining access to a restricted image and/or seeking permission to re-use an image that is restricted due to copyright, privacy, sensitivity, etc.</td></tr> <tr> <td>Other Contact</td><td>Use this contact for any type of communication that is not specified above. If "Other contact" is selected, provide an explanation in the Contact_Instructions element.</td></tr> </table>	General Contact	Use this contact for any and all communication related to the image(s) or metadata record.	Image Data Steward	Use this contact for any communication about the image including information about the original photography or scanning.	Metadata Steward	Use this contact for any communication concerning the metadata record including requests for corrections or updates	Image Access/Use Contact	Use this contact for any communication about gaining access to a restricted image and/or seeking permission to re-use an image that is restricted due to copyright, privacy, sensitivity, etc.	Other Contact	Use this contact for any type of communication that is not specified above. If "Other contact" is selected, provide an explanation in the Contact_Instructions element.
General Contact	Use this contact for any and all communication related to the image(s) or metadata record.										
Image Data Steward	Use this contact for any communication about the image including information about the original photography or scanning.										
Metadata Steward	Use this contact for any communication concerning the metadata record including requests for corrections or updates										
Image Access/Use Contact	Use this contact for any communication about gaining access to a restricted image and/or seeking permission to re-use an image that is restricted due to copyright, privacy, sensitivity, etc.										
Other Contact	Use this contact for any type of communication that is not specified above. If "Other contact" is selected, provide an explanation in the Contact_Instructions element.										
Contact_Position Optional Not repeatable Free text	<p>The title or rank of the contact person, if available. This element may be used even if no personal name is provided in Contact_Person.</p> <p>Examples:</p> <p>Park Historian Park Librarian GIS Specialist Inventory & Monitoring Specialist Facility maintenance chief Fire education specialist Public Relations specialist EFOIA Officer</p>										
Contact_Address Optional Repeatable Compound element (no data)	<p>Contact_Address provides information on where to go to physically visit the Contact person or organization and/or where to send mail for them. Repeat the Contact_Address cluster if you wish to provide both a physical and a mailing address.</p>										
=> Address_Type Optional Not repeatable Free text	<p>Address_Type to indicate the information provided by the address, usually mailing, physical, or mailing and physical.</p>										
=> Address => City	<p>Address to indicate an address line for the address, usually street address, office and/or building numbers.</p>										

=> State_or_Province => Postal_Code => Country Optional Not repeatable Free text	Example: 1234 Pine Street, Room 243 San Francisco CA 91967 USA
Contact_Voice_Telephone Optional Repeatable Free text	This is the telephone number that staff or the general public can call to speak to the Contact person or organization.
Contact_TDD/TTY_Telephone Optional Not repeatable Free text	If the Contact's office has a special number for the use of hearing-impaired individuals, record it here.
Contact_Facsimile_Telephone Optional Not repeatable Free text	The Contact's fax number.
Contact_Electronic_Mail_Address Optional Repeatable Free text	The email address that staff or the general public should use to reach the Contact person or organization.
Hours_of_Service Optional Not repeatable Free text	The days of the week and hours when staff or the general public can speak to the Contact person or organization. Example: Monday-Friday, 8:00am to 5:00pm, Eastern Time; Closed weekends and all federal holidays.
Contact_Instructions (R) Optional Repeatable Free text	Supplemental instructions, if any, on how or when to contact the individual or organization. Example: The contact works in the field during the Summer fire season and may not be able to respond to your communication for two-three weeks.

Metadata_Create_Date

Optional

Not repeatable

Structured date (YYYY-MM-DD)

The date when the metadata record was created.

For the date that the image was created (e.g. the date the picture was taken with a camera), use Descriptive_Information => Image_or_Set_Create_Date.

Example:

Smokey DeBeer created a metadata record using the Metadata Tools & Editor software on his desktop PC on August 9th, 2006. The Metadata_Create_Date is:

2006-08-09

Metadata_Update_Date

Optional

Repeatable

Structured date (YYYY-MM-DD)

The date that the metadata record was last updated or edited.

For the date that the *image* was modified (e.g. by scanning or photo editing software), use Descriptive_Information => Image_or_Set_Update_Date.

Example:

Stormy Mundée edited a metadata record to correct a typo and add a new Controlled_Term using the Metadata Tools & Editor software on August 21st, 2006. The Metadata_Update_Date is:

2006-08-21

Metadata_Access_Constraints

Mandatory

Not repeatable

Free text

Metadata_Access_Constraints specifies who is allowed to access the metadata record. There are typically the following two choices, but there could be other more specific options.

- **Public access**
- **NPS staff access only**

The reasons for limiting access to a metadata record are typically to protect a person's privacy, to comply with distribution rights associated with a copyrighted image, to protect sensitive resources, or for security reasons if general publication of the image may create a threat to the safety of the resource in the image.

Further information about the issues of copyright, privacy and sensitivity as they apply to images is available through the *NPS Focus Web Publishing Policy for Digital Resources* at <http://npsfocus.nps.gov/docs/guide/ImagePublishingPolicy.html>.

Access may also be limited to a record, because the content of the metadata and image is "housekeeping" in nature and not thought to be of general interest. For example, maintenance staff may take images of broken windows, toilets, etc. to document an asset's condition.

If access to a metadata record is restricted for any reason, ALWAYS provide an explanation in the Constraints_Information element.

It is possible to allow access to the metadata for an image, but not to the image itself. Use the Image_Access_Constraints element if the access restrictions for the image are different from those for the metadata.

Examples:

Public Access

NPS staff access only

Park staff access only.

Metadata_Use_Constraints

Optional

Not repeatable

Free text

Metadata_Use_constraints specifies any restrictions that there may be on the use of the image metadata after access is granted. In general, metadata that is created by NPS staff on NPS time is in the Public Domain and may be freely used for any of the reasons listed below.

Use of one of the following controlled vocabulary is recommended:

- **Public domain / No restrictions** – metadata may be freely used by anyone
- **Restrictions apply on use and/or reproduction** – some restrictions apply on using the metadata.
- **Restrictions apply on use and/or reproduction (Copyrighted material)** – some restrictions apply because the metadata (not the image!) was not created by NPS staff on NPS time, but was obtained through a private party who has copyrighted the metadata.
- **Restrictions apply on use and/or reproduction (Privacy issues)** – some restrictions apply because the metadata (not the image!) has information that is protected by privacy law or NPS policy.
- **Restrictions apply on use and/or reproduction (Sensitive material)** - some restrictions apply because the metadata (not the image!) contains information that by law or NPS policy is restricted from the general public such as location of archeological sites, endangered species, etc.

If any of the “Restrictions apply” options is used, ALWAYS explain in the Constraints_Information element below.

Examples of how metadata use issues may come up:

Another NPS division may wish to load a duplicate copy of the metadata record on their local system or Web site.

Another federal or state agency or non-profit institution such as a university may wish to load a duplicate copy of the metadata record on their local system or Web site.

An author, vendor or for-profit organization may wish to re-package the metadata (and images), usually in a book or Web site, and sell it for a profit.

Image_Access_Constraints

Optional

Not repeatable

Free text

Image_Access_Constraints specifies who is allowed to access the image(s) described by the metadata record. For NPS images there are typically the following two choices, but there could be other more specific options.

- **Public access** – the image has no copyright, privacy, sensitivity or other management restrictions that would prevent it from being displayed to the public
- **NPS staff access only** – the image may be accessed by staff, but not by the general public usually due to law or policy reasons such as:
 - To protect a person's privacy
 - To comply with limited distribution rights given to the NPS by the copyright holder
 - To protect sensitive information (includes watermarked information on images)
 - Or the image is simply a “housekeeping” type of image that is not expected to be of general interest such as a picture of a broken window or an office party.

If access to an image is restricted for any reason, ALWAYS provide an explanation in the Constraints_Information element.

Further information about the issues of copyright, privacy and sensitivity as they apply to images is available through the *NPS Focus Web Publishing Policy for Digital Resources* at <http://npsfocus.nps.gov/docs/guide/ImagePublishingPolicy.html>.

Examples:

Public access

NPS staff access only

Park staff access only.

Image_Use_Constraints

Optional

Not repeatable

Free text

Image_Use_Constraints specifies if and how the image may be used by other NPS staff and/or the general public. Images are often downloaded and put into print publications or Web sites including ones that are created for profit. Even if a person is permitted to access and view an image, this does not mean that they are automatically permitted to re-publish it elsewhere.

Use of one of the following controlled vocabulary is recommended:

- **Public domain / No restrictions** – image may be freely used by anyone
- **Restrictions apply on use and/or reproduction** – a general purpose statement that can cover any type of restriction
- **Restrictions apply on use and/or reproduction (Copyrighted material)** - some restrictions apply because the image was not created by NPS staff on NPS time, but was obtained through a contractor or private party who has copyrighted the image.

Remember! Even if a copyright holder has given the NPS permission to post the image to the Web, this does not necessarily mean that they have given the NPS the right to authorize use of the image by persons outside of the NPS.

- **Restrictions apply on use and/or reproduction (Privacy issues)** – some restrictions apply because the image displays the recognizable face and/or other personal information of a private, living person. A signed model release form has not been obtained or has been obtained, but it includes restrictions.
- **Restrictions apply on use and/or reproduction (Sensitive material)** - some restrictions apply because the image contains information (including watermarked information such as coordinates) that by law or NPS policy is restricted from the general public such as the location of archeological sites, endangered species, etc.

If use of an image is restricted for any reason, ALWAYS provide an explanation in the Constraints_Information element.

Further information about the issues of copyright, privacy and sensitivity as they apply to images is available through the *NPS Focus Web Publishing Policy for Digital Resources* at <http://npsfocus.nps.gov/docs/guide/ImagePublishingPolicy.html>

Constraints_Information

Mandatory if applicable

Repeatable

Free text

Constraints_Information is used to explain any restrictions on access or use of the image(s) or metadata record. This information will be needed if there is an EFOIA request or another NPS unit or partner wishes to access and use the image and metadata.

If access/use of the metadata or image is restricted in any way, ALWAYS add an explanation here.

If there are no restrictions, this element can remain blank.

- Compose the explanation so that it can be understood by someone outside of your park/program a decade from now.
- If the image was licensed by the NPS for a specific purpose, provide the details of the licensing agreement.
- If you are unable to determine if an image or metadata is copyrighted despite a good faith effort to locate this information, include a generic statement to this effect.
- If the image/metadata came from a contractor or private party and there are no restrictions, it is recommended that you explain why there are no restrictions, e.g. "Contract transferred all rights to the image to the NPS" or "Image received by unrestricted deed of transfer to the NPS."

Restrictions on access and use of images are generally due to legal, policy, and security issues such as compliance with U.S. Copyright Law, protection of sensitive resources or visitor privacy.

Further information about the issues of copyright, privacy and sensitivity as they apply to images is available through the *NPS Focus Web Publishing Policy for Digital Resources* at <http://npsfocus.nps.gov/docs/guide/ImagePublishingPolicy.html>.

Examples:

Metadata_Access_Constraints: NPS staff access only

Image_Use_Constraints: Restrictions apply on use and/or reproduction (Sensitive material)

Constraints_Information: Image is restricted from release to the public by federal law and/or NPS policy that prohibits revealing the location of cave (Federal Cave Resources Protection Act of 1988).

Metadata_Access_Constraints: NPS staff access only

Image_Use_Constraints: Restrictions apply on use and/or reproduction (Sensitive material)

Constraints_Information: The metadata record and the watermark on one of the images includes coordinates for the location of an archeological site which is restricted from release to the public by the Archeological Resources Protection Act of 1979 (ARPA). The image that does NOT have watermarked coordinates and the metadata EXCEPT for the coordinates may be shared with the general public.

Metadata_Access_Constraints: NPS staff access only

Image_Use_Constraints: Restrictions apply on use and/or reproduction (Copyrighted material)

Constraints_Information: Contract specifies that image may be used for internal NPS purposes only.

Metadata_Access_Constraints: Public access

Image_Use_Constraints: Restrictions apply on use and/or reproduction (Copyrighted material)

Constraints_Information: The metadata and image were provided to the NPS by the National Geographic who retains the copyright to the information. Reproduction beyond what is permitted by the Fair Use clause of the U.S. Copyright Act requires the written consent of the National Geographic.

Metadata_Access_Constraints: NPS staff access only

Image_Use_Constraints: Restrictions apply on use and/or reproduction (Privacy issues)

Constraints_Information: Image shows the recognizable face of an injured person and a model release form was not obtained.

Metadata_Access_Constraints: Public access

Image_Use_Constraints: Restrictions apply on use and/or reproduction (Privacy issues)

Constraints_Information: Image shows the recognizable faces of a family visiting the park. The signed model release form permits the NPS to publish the image to the Web, but does not authorize reproduction and use by any other party for any reason.

Metadata_Access_Constraints: NPS staff access only

Image_Use_Constraints: Restrictions apply on use and/or reproduction

Constraints_Information: Image is being withheld from general distribution to the public since release might make an NPS resource pictured in the image vulnerable to theft or vandalism. Requests for the image should be directed to the park EFOIA officer.

Metadata_Access_Constraints: Public access

Image_Use_Constraints: Restrictions apply on use and/or reproduction

Constraints_Information: The National Park Service has been unable to determine the ownership of these images and they may be under the protection of U.S. Copyright Law. It is the responsibility of the persons wishing to reproduce it/them to determine legal compliance.

Metadata_Access_Constraints: Public access

Image_Use_Constraints: Restrictions apply on use and/or reproduction

Constraints_Information: This image was added as part of a large batch project. Some images in the batch job are in the public domain and some may be copyrighted by a contracting photographer. To determine the restrictions that may apply to the image(s) on this record, contact the park.

Metadata_Access_Constraints: NPS staff access only

Image_Use_Constraints: Public domain / No restrictions

Constraints_Information: Image limited to staff only because it is not considered to be of general interest.

Metadata_Access_Constraints: Public access

Image_Use_Constraints: Public domain / No restrictions

Constraints_Information: Contract transferred all rights to the National Park Service.

Copyright_Information

[Copyright_Date](#) | [Copyright_Holder](#) | [Copyright_Description](#)

Optional

Not Repeatable

Compound element (no data)

Provides additional details about copyrighted images beyond what was covered in Constraints_Information and related metadata elements above.

=> Copyright_Date

Optional

Not repeatable

Free text data

The copyright date of the digital photo(s) if some person or agency outside of the federal government holds the copyright. Note: the federal government can not copyright images.

- If the contract or deed of transfer specifies the copyright date, use that.
- If no copyright date is provided, use the date that the picture was taken or scanned into digital form.
- If a specific copyright date is unknown, provide as much as is known.

Examples:

2006

Jan. 2001

Image thought to be copyrighted in the late 1990s.

=>Copyright_Holder

Optional

Not repeatable

Free text data

The name of the copyright holder if this can be determined with absolute certainty. No branch of the federal government, or federal employee who has produced a digital photo on work time, may be a copyright holder.

When the copyright is held by a contractor photographer, the Copyright_Holder is the name of the business or person who was awarded the contract. This may not be the same as the name of the actual photographer who may have been an employee of the company that holds the copyright.

=>Copyright_Description

Optional

Not repeatable

Free text data

Provides information about the copyright of the image beyond what was covered in Constraints_ Information and related metadata elements above. This could include:

- History of the copyright such as the transfer of ownership rights between parties
- Statement of how copyright holder would like photo credits to be worded
- Address of copyright holder as long as it is does not violate a private person's privacy.

If everything has already been covered in the Constraints metadata elements, this element can be left blank.

Examples:

Rights to the Civil War photo were transferred to the copyright holder through her grandfather's will.

Photo credits should list the company name and not the name of the individual photographer like this: Photographic Designs (Evanston, IL).

Retention_Information

Retention_Period | Retention_Description

Optional

Not repeatable

Compound element (no data)

Information about how long the digital photo and metadata record should be retained and why. A user may wish to limit the amount of time a particular image is kept because of either records management or collection management considerations.

Note: This manual does not address NPS policies and practices for Records Management. For guidance in this area, see the NPS Records Management Web space (<http://www.nps.gov/applications/wapc/records/index.html>) or the designated records management specialist for your park or program.

=>Retention_Period

Mandatory if optional parent element is used

Not repeatable

Free text data

The amount of time the digital photo(s) and metadata should be retained. The choices usually are “permanent” or a specified number of years or months.

=>Retention_Description

Mandatory if optional parent element is used

Not Repeatable

Free text data

Reason for retention period which may be official records management practices, or other practical considerations such as a low quality image that is being replaced with a better one.

Examples:

Retention_Period: 6 months

Retention_Description: contracted for new photograph to replace this old one with a higher resolution one

Descriptive_Information

Mandatory

Not repeatable

Compound element (no data)

Descriptive metadata are those elements used to describe the creation of and content of the image such as title, photographer, subject.

When using the User Guide, you can identify the metadata under Descriptive Information by seeing this header at the top of the page.

NPS Digital Photograph Standard User Guide
Descriptive_Information =>

Title

Mandatory

Not repeatable

Free text

A very descriptive title or caption identifying the content of the image or image set. This is NOT the same as the image's file name (e.g. APCO-BigBldg-456.jpg)!

- **Create a very descriptive title** that answers the questions:

- a) who or what is in the image
- b) where was the image taken
- c) when was the image taken

Occasionally, you may find it more useful to use "Why the image was taken," e.g. a condition assessment or vegetation monitoring image OR "How the image was taken," e.g. an aerial photograph. At a minimum, the title should describe who or what is in the image. The "what" may be an activity or event (e.g. Park ranger Juanita Doe leads interpretive tour of Benson's Creek nature trail).

- **Make the title unique.** The Title is the MOST IMPORTANT descriptive element. In 90% of all computer searches, the user searches on one or two words so many records are retrieved. Most computer systems display search retrievals by title. A unique and descriptive title will help a user quickly scan a list of search results to find exactly what he/she needs.

This is especially true if images are being shared with other NPS units. Every park has a Visitor Center and may have dozens of images of their Visitor Center. For example:

Not very useful

Title: Visitor Center
Title: Visitor Center at XYZ Park
Title: Visitor Center damage

Better

Title: Ground breaking ceremony for new Visitor Center at ABC National Park in May 2003
Title: Smoke from a wild fire rises behind the Visitor Center at XYZ National Park, Summer 2001
Title: Close-up of roof damage on the Visitor Center at DEF National Park, 2006

- **Capitalization and punctuation** – Capitalize the first word in the title and all proper names such as personal and place names. All other words should be lower-case. Use punctuation that would be appropriate for English writing.

- **Avoid beginning titles with “The, A, An”** – Titles are often sorted alphabetically to create bibliographies or by a computer system to alphabetize search results.
- **Create a collective title if there are two or more images** described on the metadata record. Many NPS image management systems allow a user to attach two or more related images to one metadata record. These are usually multiple views of the same thing, such as images of the Appomattox Court House showing the front, back, sides and a close-up. Create a title that is broad enough to cover all of the images.

Each image attached to the record will also get a “mini title” or description of the image (e.g. North side of the House) using the Technical_Description => Image_Description element.

Examples:

Notice that when you read the title, you get a pretty good idea of what’s in the picture.



1. 46th Ohio Infantry Monument at Shiloh National Military Park in May 2004
2. Lighthouse at Fort Jefferson National Monument, Florida in 1994
3. Apache storage basket from Grand Teton National Park
4. Interpreters demonstrate 16th century spice grinding at De Soto National Memorial, Fla. in Dec. 2004
5. James Cook's Den, Agate Springs Ranch including portrait of Oglala Sioux Chief Red Cloud, early 1900s



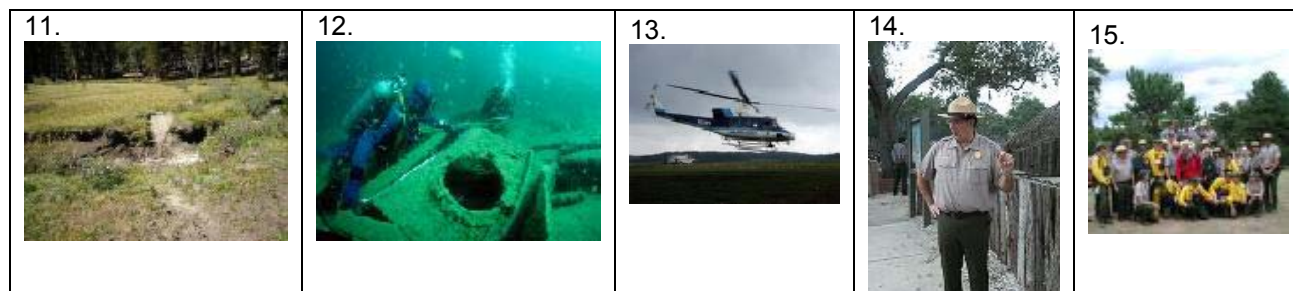
6. Butterfly weed (*Asclepias tuberosa*) at Cape Cod National Seashore

7. Female Black-tailed deer standing in short grass at Olympic National Park, Washington

8. Orange sunrise beyond Anacapa Island in Channel Islands National Park, 1992

9. Exotic Species Removal Planning at Canyon de Chelly National Monument, Chinle, AZ

10. Fire damage assessment of Double Mountain Fire, August, 2003, Glacier National Park



11. Impact and erosion on Evolution Meadow, Sequoia and Kings Canyon National Park in Sept. 2003

12. National Park Service divers mapping features of the Glenlyon (a shipwrecked bulk freighter)

13. US Park Police Eagle1 helicopter taking off from Big Meadows, Shenandoah National Park, Virginia, August 2003

14. Park superintendent Charley Fenwick at De Soto National Memorial, Fla. in Dec. 2004

15. President Bush poses with NPS Director Mainella and Rocky Mountain National Park staff, Aug. 2001

Alternate_Title

Optional
Repeatable
Free text

The Alternate_Title element is used when the content of the image can have different names, or be described in multiple ways.

- Create the Alternate_Title in the same style used for creating the Title element.
- You will usually know if an Alternate_Title is needed. If nothing immediately comes to mind, skip this element.

The Alternate_Title often comes up when NPS structures are known by different names. The same structure may have one name in the List of Classified Structures (LCS), a different name in the Facilities Management System, and also be known by a different name to park staff.

For example, the same monument at Shiloh National Military Park is listed in the LCS as "Tuttle's Brigade Headquarters Monument," but is listed on Shiloh's Web site as "1st Brigade, 2nd Division, Army of the Tennessee." See example below.

The purpose of Alternate_Title is to ensure that if an end user searches by the alternate form of the name, he/she will still find the record and image.

Example:

Title: Tuttle's Brigade Headquarters Monument, Shiloh National Military Park in May 2004

Alternate Title: 1st Brigade, 2nd Division, Army of the Tennessee Monument, Shiloh National Military Park in May 2004

Contributor

Name_Information | Role | Affiliation

Optional

Repeatable

Compound element (no data)

Contributor includes the name of any person or organization that was responsible for causing the image to exist in its current form. This could be a photographer, scanning technician, photo editor, project sponsor, contractor, etc.

Repeat the whole Contributor cluster for EACH name.

The Contributor element has three sub-elements:

- **Name_Information** – the name of the person, agency or organization
- **Role** – what role they played in causing the image to exist (e.g. Photographer, Sponsor)
- **Affiliation** – The name of the NPS unit or other organization to which the Contributor belongs AND/OR job title if desired

Contributor is one of the most difficult metadata elements to complete because there are so many possible variations. Since Contributor is a critical element for searching, sorting, and creating bibliographies, try to be consistent with existing metadata records that have the same Contributor.

Don't Agonize! If unsure how to enter a name, just type as much information as you have and move on!

For the name of a person who appears in an image, but was not responsible for its creation or modification, use *Descriptive_Information => Controlled Terms or Uncontrolled Terms*.

=>Name_Information

Mandatory if optional parent element is used

Repeatable through parent element

Free text data

Use Name_Information for the name of a person, NPS unit, or any other type of organization that had a direct (e.g. photographer) or indirect (e.g. project sponsor) role in the creation of the digital photograph. The guidelines below cover personal names, NPS park/program names, and other organization names.

Personal Names

- **Enter the name using this order:** LastName, FirstName MiddleInitial/Name, Jr.

Example: Evans, Samuel Joseph, III

- **Nicknames / Other names:** Use the full/formal form of a person's name instead of a nickname UNLESS that person typically uses their nickname on NPS or other official documents.

Example: Timothy Smith uses his nickname "Tim Smith" on all NPS documents. Enter his name as Smith, Tim

- **Degrees and Titles:** Degrees and titles such as Ph.D., Dr., Superintendent are NOT written with the name. Include them as part of the Affiliation.
- **Name is unknown:** If the name of the photographer is unknown, enter as much as IS known so that no one will have to re-trace your footsteps only to find that no specific information is available. Examples:

NPS staff
NPS Park and Facility Management Program staff
Sequoia and Kings Canyon fire staff
Unknown

NPS Park, Program, Office Names

- **No acronyms.** This record may be viewed by a person at another agency twenty years from now. Do not use acronyms or short-hand expressions that may not be understood over space and time.
- **Enter the CURRENT form of a park name directly** (with no previous U.S., D.O.I. or NPS). If it is important to note that the park had a different name when the digital photo was created, use *Descriptive_Information => NPS_Unit_Information => NPS_Unit_Previous_Name*.

Redwood National and State Parks
San Francisco Maritime National Historical Park
Vicksburg National Military Park

- **Enter the words "U.S. National Park Service," before all other NPS program and office names.** Assume that this record/image will be shared with other bureaus in the DOI, a university partner, and even parks and universities in other countries. By adding "U.S. National Park Service," it will be clear to the end user that the record is not referring to a similar office in another organization.

U.S. National Park Service. Office of Public Affairs
U.S. National Park Service. Air Resources Division

Other Agency/Corporate/University Names

- **Government agencies.** First put U.S. or the name of the State, then follow this with the name of the department, bureau, division, etc.

U.S. Fish and Wildlife Service
Virginia. Department of Historic Resources

- **Universities.** Enter the name of the university followed by the name of the department, center, etc.

University of Idaho. Park Studies Unit
 North Carolina State University. Center for Earth Observation
 Northern Arizona University. Colorado Plateau Cooperative Ecosystem Studies Unit

- **Other organization names** – add the official name of the organization

National Park Foundation
 National Geographic Society
 Society for Industrial Archeology
 Discovery Communications, Inc.

=>Role

Optional
 Repeatable within parent element
 Free text data

Role describes the contribution that person or organization made to the creation of the resource. Below is a preliminary list, but additional Roles may be needed for special circumstances.

Photographer – he/she took the picture (digitally or on film)

Scanning technician – he/she scanned a physical slide, print, or negative

Image editor – he/she modified the image digitally by cropping, correcting for color, contrast, etc.

Project manager – he/she managed the project that caused the picture to be taken

Sponsor – the group or individual that caused the image to be created by arranging for a contractor or other person or group to create it

=>Affiliation

Optional
 Repeatable through parent element
 Free text data

The organizational affiliation (and title if desired, e.g. Fire Specialist) associated with the Name element. This may include any office within a park or the NPS in general, or an outside affiliation such as a contractor's company, university affiliation, volunteer group, or any private or government organization.

- For NPS employees - list the office within a park or program where the person works and or job title, e.g. Chief of Interpretation at Everglades National Park
- For a professor - list the university and department
- For a vendor/contractor - list the name of the company and location for small businesses, e.g. Mark's Photo (Huntington, WV)

Information_Type

Optional

Not repeatable

Controlled vocabulary

Information_Type identifies the information format of the image(s) described in this metadata record. For digital photos, this will always be "Image" or "Image collection."

- **Image** - Use Image when there is only one image associated with the record
OR
When there are two or more images associated with the record, but each image is described separately on the record usually using Technical_Information => Image_Information => Image_Description, or possibly, Descriptive_Information => Abstract.

For example, if there are five images of the Statue of Liberty associated with the record that are pictures taken from different angles, somewhere on the record would be details on each image: Image 1: overall view taken from approaching ferry; Image 2: Close-up of plaque at base of statue; Image 3: Overall view facing south, etc.

- **Image Collection** – Use Image Collection when the record describes a collection of images (could be two or two thousand) and information is NOT provided on each individual image.

For example, a record could be for an image collection consisting of over 700 images that are Prescribed burn images at SEKI taken in the Summer of 2004. The metadata does not describe each of the 700 images so it is a record for an Image Collection.

Additional information on metadata for image collections is in the section *"How to Use This Standard for Collection-Level Metadata Description"* at the end of the User Guide.

The Information_Type element is important because metadata records for images are likely to be shared in a system or Web space that also has metadata for other information types such as reports, drawings, maps, or data sets. The Information_Type element will enable discovery of images by type.

Image_or_Set_Create_Date

Mandatory (if date is known)

Not repeatable

Structured date (YYYY-MM-DD)

The date when the image or photograph was originally created in either film or "born digital" format.

- If the image was taken with a digital camera, find the date in the image properties using Windows Explorer (or other software)
- If the month and/or day is unknown, replace MM and DD with 01 (zero one)
- If the exact year is unknown, leave the Image_or_Set_Create_Date blank and use *Descriptive_Information => Comments* to provide what is known (or not known).

Comment: Image believed to have been taken in the 1970s.

Comment: Original photos were probably taken in the 1940s or 1950s.

Comment: Original photos may have been taken in the late 19th or early 20th century.

Comment: The date of the original photo is unknown.

Examples:

2006-08-15 – The image was taken with a digital camera on August 15, 2006

1962-01-01 – The photograph was taken using 35mm film sometime in 1962
(-01 used for unknown month and day)

Image_or_Set_Update_Date

Optional
Repeatable
Structured date (YYYY-MM-DD)

The date when the photo was last modified because it was scanned or edited using digital image editing software.

This element does not apply to a digital image that is modified and saved with a new filename if you intend to keep both versions of the image. These are now considered to be TWO images and not an update of the original image.

- If the date that an image was modified is unknown, try opening it in image editing software and check the properties or File Info. The date last edited *may* be there.
- If the month and/or day is unknown, replace MM and DD with 01 (zero one)
- If the exact year that the image was scanned or edited is unknown, leave the Image_or_Update_Date blank and use *Descriptive_Information => Comments* to provide what is known (or not known).

Comment: Image believed to have been scanned in the early 1990s.

Comment: Image is a scanned photograph, but the date of scanning is unknown.

Comment: The image may have been digitally edited shortly after it was taken.

- PhotoLink users. If you use PhotoLink to create a watermarked image AND plan to keep the original image, these should be considered TWO images since they are different.

From the date that the metadata record was last updated (e.g. typo corrected, controlled terms added), use *Administrative_Information => Metadata_Update_Date*.

Examples:

A photograph was taken on Jan. 5, 1985 and the print (negative, slide) was scanned on May 15, 2006

Image_or_Set_Create_Date: 1985-01-05
Image_or_Set_Update_Date: 2006-05-15

A photograph was taken with a digital camera on Nov. 12, 2004 and two days later on Nov. 14, 2004, it was imported into image editing software (e.g. Adobe PhotoShop) where it was rotated and the color and brightness were adjusted.

Image_or_Set_Create_Date: 2004-11-11
Image_or_Set_Update_Date: 2004-11-14

Publication_Date

Optional

Not repeatable

Structured date (YYYY-MM-DD)

The date when the digital photo was published, usually to a Web-enabled computer system or a Web page. Digital photos stored on a disk or hard drive are not considered to be published.

Examples:

The metadata record and image(s) were posted to NPS Focus on April 20, 2006

Publication_Date: 2006-04-20

Publisher

Optional

Not repeatable

Free text

The name of the individual or organization that published the image or image set. If the image was added to a computer system or Web page managed by the National Park Service, then the publisher will always be the National Park Service.

Optionally, the user may add the name of the park, program or office that manages the information system or Web site.

This element is important because it is likely that NPS images and metadata will eventually be shared with other branches of the DOI, the National Archives, universities and/or State parks.

Examples:

Image was published on the NPS Focus Digital Library

Publisher: U.S. National Park Service

Image was published to the Natural Resources and GIS Data Store

Publisher: U.S. National Park Service. Natural Resources and Information Division.

Size_and_Format

Optional

Not repeatable

Free text

The Size_and_Format element describes the quantity, digital format, and file size (if desired) of the image(s) described on the record.

Size_and_Format should answer the questions:

- How many are there? (e.g. 7 digital images)
- What is the format? (e.g. JPG, TIF)
- What size is it/are they? (file size and/or pixel size with resolution)

This same information is also captured for each image in the *Technical_Information => Image_Information => Primary_Image_Technical_Information => Image_Data* metadata element. **Which should you use?**

- IF you are using an information system or software that automatically extracts the technical metadata from a digital image (header and Exif data) and populates the Image_Information fields in the metadata record, you may wish to leave the Size_and_Format element blank.
- IF you are manually entering the data for every image associated with the record, you may choose either. Use Size_and_Format if you want to work faster and a summary statement is enough. If the same digital camera was used for all images, the information should be about the same for multiple images.
- IF the metadata record is for a collection of images and the images are NOT being described individually, use Size_and_Format to provide a summary statement about the quantity and formats in the collection.

You can find the technical information about the image such as file size, width, height and dpi by locating the image on your hard drive using My Computer or Windows Explorer, then right-clicking on the file and selecting Properties and then Advanced.

Examples:

3 digital images in JPG format (1.0-1.5 MB)

2 black and white digital images in uncompressed TIF format (each is approx. 18MB; 3072 x 2048; 300 dpi)

756 digital images in JPG format ranging from 750K to 1.4 MB

25 digital images in JPG format (approx 1MB each; 2592 x 1944 pixels; 300 dpi)

Online_Linkage

Optional Repeatable URL

A URL link to the image(s) being described.

Use this if the image is retrieved by using a URL.

If more than one image is associated with the record, repeat the element for each image URL.

Note: Images from the NPS Focus Digital Library and some other NPS systems are called by something called a Web API and not by a static URL. IF using one these systems, leave this element blank and use their recommended method for retrieving images.

Examples:

`http://www.nps.gov/SomeFolder/image-1.jpg`

`http://www.nps.gov/SomeFolder/image-2.jpg`

Abstract

Optional Repeatable Free text

Abstract or summary description about the content of or significance of the image or image set. Identify people, places, buildings, things, and events if this is not clear from the Title element.

Keep in mind that the metadata record is preserving government information for posterity who may never meet you or visit your park. The Abstract is an important element for providing context for an image so that anyone can use it.

- Compose one or more sentences explaining the context for the image(s).
- **Give full context** - The Abstract should supply enough information that the image can be interpreted by someone ten years from now and a thousand miles away in another division of the NPS.
- **Copy/Paste Abstract from existing documents** - If the images complement a written report, Web site, etc., you may be able to use some existing text for the Abstract with only minor revisions. This allows for complete information on the context of the image without much work. (see examples below)
- **Batch jobs** – Occasionally the same Abstract may need to be added globally to multiple metadata records because they are being processed as a batch. Compose an Abstract that explains why all the images have a common purpose or theme. For example, were the images taken as an asset condition assessment project in 2006, vegetation monitoring in May 2004, a Civil War battle re-enactment in 1998, a construction project, a park special event?

Examples:

- ◆ A cabbage palm tree along a nature trail in De Soto National Memorial. Cabbage palm tree leaves are edible and would have been widespread in Florida during the De Soto expedition.
- ◆ Monitoring of Spring 2005 prescribed fires at Herbert Hoover NHS. The purpose of the burns was to reduce shrubs.
- ◆ Photos depict the deterioration of the bulkhead surrounding Floyd Bennett Field and the need to develop a shoreline management plan which considers both hard and soft shoreline features.
- ◆ Before, during and after photos of the stabilization of the Lewis Corncrib which was damaged after a severe Summer of 2004 thunderstorm.
- ◆ Photo documentation of the Randolph Cottage before restoration.

- ◆ This allosaurus skull fossil is from the quarry at Dinosaur National Monument which is the single most important Jurassic dinosaur paleontological site in the world.
- ◆ Images are of the 2005 Virgin Islands Folk Life Festival at Annaberg Sugar Plantation Ruins. The theme was "Traditional Boatmaking and commerce in Our Beloved Community."
- ◆ This is from a series of photographs taken during the August 2001 visit of President George W. Bush to the site of the Emerald Mountain Fuel Reduction Project.

Examples where Abstract was copied/pasted from an existing document

- The Jasper wildfire of August and September 2000 was the largest fire in the recorded history of the Black Hills. The fire ignited on August 24, 2000, near Custer, South Dakota, and is believed to have been human-caused. On the first day, the fire doubled in size every hour. It spread at an average rate of over 7 acres (about 7 football fields) per minute, consuming 3,655 acres by the end of the day. Fueled by unstable weather conditions, the fire continued to grow during both the day and night of the 25th. On the third day, strong winds and extreme conditions caused the fire to grow by 48,555 acres, or 76 square miles, in the space of only a few hours. Fire behavior moderated on subsequent days; however, fuel moisture remained extremely low, and the fire grew by another 23,000 acres before containment on September 8. The fire's final size was 83,508 acres, the largest fire in the recorded history of the Black Hills.
- This shirt once belonged to Chief Red Cloud (1822-1909), a legendary Oglala Sioux leader of the Lakota Nation. In the 1860s, Chief Red Cloud led the Lakota and their allies to close the Bozeman Trail, a route to the Montana gold fields. He negotiated a treaty resulting in the U.S. abandoning its forts along the trail. Turning from warrior to diplomat, Red Cloud continued in later life to fight for the rights of his people, while walking a fine line between two cultures. Often photographed, he has become an icon, in the larger public memory, for all indigenous peoples of an earlier time in U.S. history. In the late 1800s, he befriended Nebraska rancher James Cook and the two enjoyed an enduring relationship. In a portrait painted at Cook's Agate Springs Ranch in 1902, Red Cloud wears this shirt, which he presented to Cook on his last visit in 1908. Part of Cook's ranch now forms Agate Fossil Beds National Monument.

Examples where one Abstract was globally added to many records

- Between July and September 2003 the Stock Use and Meadow Monitoring Program at Sequoia and Kings Canyon National Parks conducted an environmental assessment of a number of wilderness meadows within the boundaries of the two parks. The image(s) included here are part of the digital image record created as part of those surveys.
- This image was taken as part of a condition assessment project conducted by the NPS Park and Facility Management Program in 2004 to document the ongoing physical condition of structures within National Park Service boundaries.
- Images were contracted by the NPS Office of the Chief Information as part of a larger project to add images of all Civil War monuments to the NPS Civil War Soldiers and Sailors System.

Controlled_Terms

Controlled_Term_Thesaurus | Controlled_Term

Optional

Repeatable

Compound element (no data)

Subject headings, or other words or phrases describing the content of the image that are selected from a thesaurus or controlled vocabulary list. Controlled terms may be topics, proper names of persons, groups or events, or visual descriptions of content (e.g. shaking hands, smiling faces).

Adding controlled terms or subject headings to a metadata record improves a user's chances of discovering this and related images.

For topical terms that do NOT come from a thesaurus, use *Descriptive_Information => Uncontrolled_Term*.

- **Add one or more topical terms** to describe the content of the image. The average number of uncontrolled terms added to records is three, but the important consideration is to describe the content of the image and this could take one Controlled_Term or ten.
- **Repeat the entire Controlled_Term cluster** for each new term.
- **Consider the full scope of the image content.** You may be creating metadata of an image to track a prescribed burn. Besides the fire, however, the image may include a good shot of a type of wild flower, visitor center, park visitors, NPS staff, sunset, etc. Fire staff may not care about the wild flower, but add the subject heading so that it can be discovered by someone who does.
- **Personal names** - When the image is of a person or persons, the name(s) are unlikely to be in a subject thesaurus. You have two options:
 - a) Use the Controlled_Term, and enter the name using the order: LastName, FirstName. Follow the guidelines for names from *Descriptive_Information => Contributor => Name_Information*. For Controlled_Term_Thesaurus enter "NPS."
 - b) Use the list Library of Congress Name Authority File (LCNAF) which is the largest list of personal and corporate names in the world and is used by libraries in many countries. Search by LastName, FirstName, find the authorized version and copy/paste it into the Controlled_Term element. (See more below) The advantage is that name searches will be interoperable with other NPS, federal and university catalogs.
- **Building/structure names** – When the image is of a named building, it is unlikely to be in a thesaurus. Add the official NPS name of the building. If the official version is

unknown, or it has multiple names, choose the name of the building by which it is best known.

- **Be consistent with other metadata records** – if adding a personal or building name, check to see if it has already been used in other metadata records. If it has, enter the term exactly as it appears in other records.

=>Controlled_Term_Thesaurus

Mandatory if optional parent element is used
Repeatable through parent element
Free text data

The name of the thesaurus from which the Controlled_Term was taken. In this context, a thesaurus is a list or database of subject terms that can be used to describe an image.

NPS staff are encouraged to use a standardized topical thesaurus created by the NPS and/or a nationally recognized one.

- **NPS Focus Name and Subject Thesaurus** – a growing list of subject headings covering all topics within the scope of the NPS including cultural and natural resources, fire/facilities and stewardship, visitation, NPS staff, events and history. Users are encouraged to submit new terms to add to the Thesaurus.
<http://thesaurus.focus.nps.gov>
- **Getty Art and Architecture Thesaurus (AAT)** – a structured vocabulary of around 34,000 concepts, including 131,000 terms, descriptions, bibliographic citations, and other information relating to fine art, architecture, decorative arts, archival materials, and material culture.
http://www.getty.edu/research/conducting_research/vocabularies/aat/
- **Integrated Taxonomic Information System (ITIS)** - authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.
<http://www.itis.usda.gov/>
- **Thesaurus for Graphic Materials I: Subject Terms (TGM I)** - A thesaurus of over 6,300 terms for indexing visual materials, as well as numerous cross references. Developed by the Library of Congress Prints and Photographs Division.
<http://www.loc.gov/rr/print/tgm1/>
- **Thesaurus for Graphic Materials II: Genre and Physical Characteristic Terms (TGM II)** - thesaurus of more than 650 terms for types of photographs, prints, design drawings, and other pictorial materials. Developed by the Library of Congress Prints and Photographs Division.
<http://www.loc.gov/rr/print/tgm2/>
- **Library of Congress Name Authority File (LCNAF)** – Largest database in the world of the authorized version of the names of people and organizations. Names often include dates or qualifiers to distinguish persons who have the same name. Fairly easy to use and names will be consistent with the form of the same name used in library catalogs.
<http://authorities.loc.gov/>

- **Library of Congress Subject Headings** – Largest database in the world of subject headings that cover the universe of knowledge. Very useful for high level topics, but requires special training to assemble facets correctly (which free-floating subdivision lists can be used for particular headings, whether geographical subdivision is direct/indirect, whether it is placed after topic or subtopic). For beginners, it is recommended that you search the Library of Congress catalog and copy/paste desired subject headings from existing records.
<http://authorities.loc.gov/>

Numerous NPS parks or programs have developed topical thesauri customized for the content they manage. Some of these include the DSC Technical Information Center (architecture, engineering, management plans), the Historic American Buildings Survey – HABS-HAER-HALS (Historic buildings), Museum Management Program (art, archeology, archives).

=>Controlled_Term

Mandatory if optional parent element is used
Repeatable through parent element
Free text data

The subject heading or topical word or phrase taken from a thesaurus or other controlled list.

- Repeat the Controlled_Terms cluster for each new Controlled Term.
- Enter the complete term as it appears in the thesaurus including capitalization and punctuation.
- Some thesauri require a user to construct a subject heading by assembling different facets including Topics, subtopics, nationality, geographical location, chronological terms, and/or form/genre types. Take the time to learn how the thesaurus works.

Examples:



Title: Diver on the gun of the sunken battleship the USS Utah

Thesaurus: NPS Focus

Term: U.S.S. Utah (battleship, sunk Dec. 7, 1941)

Thesaurus: NPS Focus

Term: Sunken ships

Thesaurus: NPS Focus

Term: Battleships

Thesaurus: NPS Focus

Term: Divers

Thesaurus: NPS Focus

Term: Underwater archeologists



Title: Carte-de-Visite (Photographic calling card) of Frederick Douglass

Thesaurus: LCNAF

Term: Douglass, Frederick, 1818-1895 -- Portraits

Thesaurus: LCSH

Term: Carte de visite photographs

Thesaurus: LCSH

Term: African American abolitionists



Title: Hoof impacts and shearing at Upper Bubbs Meadow, Sequoia and Kings Canyon National Park, 2003

Thesaurus: NPS Focus

Term: Meadows -- Environmental impact analysis -- Animals -- Tracks

Thesaurus: NPS Focus

Term: Vegetation monitoring -- Imagery

Thesaurus: NPS Focus

Term: Livestock -- Environmental impact



Title: Union Garrison Monument at Fort Sumter National Monument in November 2004

Thesaurus: NPS Focus

Term: Union monuments and markers

Thesaurus: LCSH

Term: Siege of Fort Sumter, S.C., April 12-14, 1861

Thesaurus: LCSH

Term: United States -- History -- Civil War, 1861-1865



Title: Camp Uzita 16th century interpreter gives crossbow demo at De Soto National Memorial, Dec. 2004

Thesaurus: NPS Focus

Term: Crossbows

Thesaurus: NPS Focus

Term: Spanish soldiers -- 16th century

Thesaurus: NPS Focus

Term: Living history -- Colonial America -- 16th century



Title: Yucca or Spanish bayonet wild flower at Sequoia and Kings Canyon National Parks

Thesaurus: NPS Focus

Term: Spanish bayonet (*Yucca whipplei*)

Thesaurus: NPS Focus

Term: Yucca

Thesaurus: NPS Focus

Term: Wild flowers

Uncontrolled_Term

Optional
Repeatable
Free text

A Word or phrase (e.g. keyword) that is NOT taken from a thesaurus or controlled vocabulary list that describes topics or themes of the content of the image or image set.

Uncontrolled_Terms may be topics, proper names of persons, groups or events, or visual descriptions of content (e.g. shaking hands, smiling faces).

Uncontrolled_Terms may be added instead of a Controlled_Term that uses a thesaurus. They may also be added *in addition to* Controlled_Terms because the thesaurus does not include all of the needed topics.

- The metadata creator should make up a term using language that end users are likely to use for searching.
- **Add one or more Uncontrolled_Terms** to describe the content of the image. The average number of uncontrolled terms added to a record is five, but the important consideration is to describe the content of the image and this could take one Uncontrolled_Term or twenty.
- **String together multiple Uncontrolled_Terms** by placing a space semicolon space (;) between them.
- **Consider the full scope of the image content.** You may be mainly interested in one thing in the image, but the picture also happens to include a good representation of another topic such as geologic features, plants, structures, or park activities. Include Uncontrolled_Terms for these other topics so that the image can be discovered by end users looking for the related topics.

Examples:



Title: Helicopter used for fire suppression on Bubbs wildfire, Sequoia and Kings Canyon National Parks, summer 2002
(6 images on metadata record)

Uncontrolled_Terms: helicopter reconnaissance ; helicopter operations ; backcountry ; wilderness ; firefighters ; water drops ; bambi bucket ; helispot



Title: Adams Mansion, Quincy, Massachusetts
(15 images on metadata record)

Uncontrolled_Terms: domestic life, U.S. Presidents
Uncontrolled_Terms: 2 1/2 stories, andirons, architraves, attics, baseboards, basements, bathrooms, bathtubs & showers, beams (structural elements), bedrooms, beds, bells, bolection moldings, brick arches, brick chimneys, brick vaults (architecture), brick walls, buffets

Image_Content_Date

Begin_Date | End_Date

Optional

Repeatable

Compound element (no data)

Image_Content_Date is the single date or date range represented by the contents of the digital photo(s).

For a digital photo, this is usually the date the picture was taken. The picture indicates how a particular building, meadow, person, etc. looked on that particular date. *[Note that this is often not true for other types of digital resources, especially texts. A report usually discusses a time period prior to its creation/publication.]*

Image_Content_Date consists of two subelements "Begin_Date" which is also used for single dates and "End_Date."

If the image was taken with a digital camera, find the date in the Image Properties using My PC, Windows Explorer, or other software. If the picture is an older print, negative or slide that was scanned, the date may need to be estimated to within a year or decade.

- **Use Begin_Date** for single dates and the beginning of date ranges.
- **Use End_Date** when there are multiple images that were taken over two or more days associated with a record –OR– when the exact date is unknown to provide the probable range.
- **Use a structured date** (ISO 8601 compliant). Enter the date using the format YYYY-MM-DD.
- **If the month and/or day is unknown**, replace MM and/or DD with 01 (zero one)
- **Uncertain and Estimated dates** – Even if the Image_Content_Date can only be estimated to a 10-20 year period, this should be provided using Begin_Date to indicate the beginning of an estimated range and End_Date to indicate the end. Fifty or a hundred years from now, knowing that an image dates to the 1970s or 1980s is more useful than knowing nothing at all.
- **Era names vs structured dates** – The names of historical eras (e.g. Jurassic Period, Pre-Columbian, Depression Era) may be given in addition to, or instead of the Image_Content_Date element by adding them to the Controlled_Term or Uncontrolled_Term element. Providing both Image_Content_Date and era names would enable discovery of the image through either a Subject or Date search.

- **Indicating both Date of Image and date of object in image.** Optionally, the Image_Content_Date cluster can be repeated to indicate the time period of the object in the image.

For example, a building may have been built in 1857, but the picture depicts how it looked on Oct. 13, 2002. Repeat the Image_Content_Date cluster to capture both dates. Be sure that the reason for the second date is explained somewhere in the metadata record such as the Abstract, Controlled or Uncontrolled Terms or Comment.

Image_Content_Date => Begin_Date: 2002-10-13
Image_Content_Date => Begin_Date: 1857-01-01.

An end user may be looking for pictures of 19th century buildings, OR they may be looking to see how this particular building looked in 2002. Both levels of “aboutness” have been captured by the metadata.

=>Begin_Date

Mandatory if optional parent element is used
 Repeatable through parent element
 Structured date (YYYY-MM-DD)

A single date OR the beginning of a date range represented by the contents of the digital photo(s).

=>End_Date

Optional
 Repeatable through parent element
 Structured date (YYYY-MM-DD)

The end date of a date range represented by the contents of the digital photo(s).

Examples:



Single Date

(2 images taken on May 24, 2004)

Title: Fort Darling at Richmond National Battlefield Park, May 2004

Begin_Date: 2004-05-24

End_Date:



Single Date, only month and year known

(1 image taken in Sept. 1993; unknown Day replaced with 01)

Title: Sea anemone and starfish at Channel Islands National Park

Begin_Date: 1993-09-01

End_Date:



Date Range

(8 images taken between April 27th and Sept. 26th, 2004)

Title: Cleartrap prescribed burn at Zion National Park, 2004

Begin_Date: 2004-04-27

End_Date: 2004-09-26



Estimated dates

(14 images on metadata record thought to be taken in the 1980s or 1990s)

Title: Organ Pipe and Other Cacti at Organ Pipe National Monument, Arizona

Begin_Date: 1980-01-01

End_Date: 1999-12-31



Date of Image and date of object in image

(6 images taken July 26, 2001 of a monument built in 1900. Image_Content _Date cluster repeated for structure date with unknown month and day replaced with 01-01)

Title: 15th Regiment Massachusetts Volunteers at Antietam National Battlefield, July 2001

Begin_Date: 2001-07-26

End_Date:

Begin_Date: 1900-01-01

End_Date:

Comment: Built in 1900; designed by A. O.Connor



Date of Image and date of object in image

(1 image probably taken between 1990 and April 2004 of a museum object probably created before 1902, but during the Chief's lifetime)

Title: Chief Red Cloud's shirt (Oglala Sioux shirt, pre-1902)

Begin_Date: 1990-01-01

End_Date: 2004-04-01

Begin_Date: 1850-01-01

End_Date: 1901-12-31

Abstract (excerpt): In a portrait painted at Cook's Agate Springs Ranch in 1902, Red Cloud wears this shirt.

Image_Content_Place

Place_Description | Bounding_Coordinates | UTM_Bounding_Coordinates

Mandatory (Place_Description)

Optional (all other elements)

Repeatable

Compound element (no data)

The Image_Content_Place is the geographical location where the picture was taken. This should include a text description (State, county, city, park, region in park). Optionally, Bounding_Coordinates, Lat/Long coordinates, and/or UTM coordinates may be added.

=>Place_Description

Mandatory

Repeatable through parent element

Free text

A text description of the geographical location where the picture was taken. It is recommended that you provide the complete geographical location such as State, county, city, park, region in park when they apply.

State – Region or County – City – Park – Region in park

Pennsylvania -- Gettysburg -- Gettysburg National Military Park -- Little Round Top

This is especially true if you plan to share the metadata records/images with anyone outside of your park because:

- ⇒ Many end users, particularly the general public or other agencies, may not know where your park is located.
 - ⇒ It would enable a search across all national parks in a State, e.g. “California AND wild flowers.”
 - ⇒ It would promote searching across government agencies. Within a geographical area there could be a national park, State park, Fish & Wildlife Service refuge, national forest, etc. For example, the threatened species called the northern spotted owl is located in all of the above in the State of Washington. In theory, a multi-system search across agencies of “Washington AND spotted owl” would retrieve complete results from all parks, refuges, etc.
- **Write the place description as a hierarchy** giving the largest geographical unit down to the smallest covered by the resource.
 - **Separate each part in the hierarchy** using a space hyphen hyphen space (--)

- **Use an appropriate geographical hierarchy for the park** or other area being described. This may include replacing a county with a regional name.
- **Use the Table of Geographical Locations of Parks as a guide**, but revise it as needed to fit the situation (http://npsfocus.nps.gov/docs/guide/metadata/PlaceList_Parks.html). This Table is the first of its kind in the NPS and may not be perfect. If you feel corrections should be made for your park, send them to: NPS_Focus@nps.gov.
- **If more than one geographical place** is represented by the image(s) on the metadata record, repeat the Image_Content_Place cluster for each one.

=> **Bounding_Coordinates**

West | East | North | South | Datum

Optional

Repeatable through parent element

Integer

Coordinates that describe the geographic location or extent of the image. Should be written in decimal degrees.

- **Use only decimal degrees** to at least the fifth decimal place and the datum **MUST** be NAD 83. A tool for automatically converting degree/minutes/seconds to decimal degrees is available at:

<http://npsfocus.nps.gov/docs/guide/metadata/place.html#coordinates>

34 Deg. 30 Min. 2149 Sec. North => 34.505969

88 Deg. 43 Min. 4498 Sec. West => -88.729161

- **Datum** – use only the NAD 83 datum
- **Only Lat/Long available.** If only Latitude and Longitude coordinates have been collected, put these in the North and East elements respectively.
- **Multiple images with different coordinates** – If two or more images are associated with the metadata record and each has its own set of coordinates, use
Technical_Information => Image_Information =>
Primary_Image_Technical_Information => GPS_Capture => appropriate
subelements and repeat the Image_Information cluster for EACH image.

=> **UTM_Bounding_Coordinates**

UTM_West | UTM_East | UTM_North | UTM_South | UTMZone | UTMDatum

Optional

Repeatable through parent element

Integer or free text

UTM (Universal Transverse Mercator) coordinates, zone and datum that describe the geographic location or extent of the image.

UTM coordinates in metadata are NOT computer searchable. Use Bounding_Coordinates if the record will ever be searched by coordinates.

- **Use only decimal degrees** with two decimal places

UTM_East: 576977.59
UTM_North: 2809228.94
UTMZone: 17 N
UTMDatum: NAD 83

- **Zone and datum** – always include the UTM Zone and the datum should be NAD 83.
- **Only Lat/Long available.** If only Latitude and Longitude coordinates have been collected, put these in the UTM_North and UTM_East elements respectively.
- **Multiple images with different coordinates** – If two or more images are associated with the metadata record and each has its own set of coordinates, use *Technical_Information => Image_Information => Primary_Image_Technical_Information => GPS_Capture => appropriate subelements and repeat the Image_Information cluster for EACH image.*

Examples:



Title: Artillery Monument at Stones River National Battlefield, April 2004

Place_Description: Tennessee -- Rutherford County -- Stones River National Battlefield

Bounding_Coordinates

North: 35.888033
East: -86.425908
Datum: NAD 83



Title: West Kern wildfire used for resource benefit, Sequoia and Kings Canyon National Parks, Summer 2003

Place_Description: California -- Sequoia and Kings Canyon National Parks -- Kern River Canyon

Bounding_Coordinates

North: 36.356111
East: -118.42222
Datum: NAD 83



Title: Construction of Rock Harbor replacement docks 1999-2001, Isle Royale National Park

Place_Description: Michigan -- Houghton County -- Isle Royale National Park -- Rock Harbor (no coordinates available)



Title: John Muir Trail in Baxter Meadow, Sequoia and Kings Canyon National Park in Sept. 2003

Place_Description: California -- Sequoia and Kings Canyon National Parks -- Baxter Meadow -- John Muir Trail

UTM_Bounding_Coordinates

UTM_North: 4079300.10
UTM_East: 374693.68
UTM_Zone: 58

Comments

Optional Repeatable Free text

A comment, note or description about anything related to the digital photo(s) or the metadata record that is not covered by another element.

Comments may be used to:

- Explain another metadata element, especially complex or approximate dates.
- Discuss something about the acquisition of the image such as a description of a special project that caused the picture to be taken.
- Provide details about the content of the image not covered in the Abstract such as statements of size, construction, or damage.
- Provide details about the taking of the image such as special equipment used (underwater cameras) or where the photographer was located (aerial photograph taken from helicopter).
- Information about people, places, or events associated with the content of the image, if not covered in the Abstract such as the Cultural Resources practice of listing famous people that have been associated with a place or object.
- Anything that doesn't fit somewhere else, but that a user of the image or metadata record may find helpful.

Examples:

- ◆ Original photos probably taken sometime in the 1940s.
- ◆ Building/structure dates: c-1836; c-1869; 1788; I: c-1731; Building/structure dates:1797-1800
- ◆ Harpers Ferry Road is 61.6 miles above tidewater.
- ◆ There are currently parts of the bronze flagstaff missing.
- ◆ Image taken from the top of the Ranger Station at Rae Lakes.
- ◆ Underwater photograph.
- ◆ Image taken at night without photographer present using a camera with a motion sensor.
- ◆ Famous names associated with Adams Mansion: Adams, Abigail; Adams, Brooks; Adams, Charles Francis; Adams, John; Adams, John Quincy; Vassall, Maj. Leonard.

Internal_Comments

Optional
Repeatable
Free text

Use the Internal_Comments element for any type of information that should display to NPS staff but NOT to the public.

Internal_Comments may be used for:

- A metadata updater note about the metadata record such as why it was modified (e.g. Added Controlled_Terms on 12/14/2005).
- Information on the cost or value of the image, metadata or object in the image.
- Statement of security issues associated with the resource,
- Private information about the copyright holder, person, or group who provided the image such as names and home addresses.
- Information about model release forms on file for a person in the image (or other documentation).
- Any type of information about the metadata, image or object in the image that would be used by staff and not by the general public.

Examples:

- ◆ Record Access restrictions were changed from “Staff only” to “Public access” on July 15, 2005 after a model release form was obtained.
- ◆ Photo is part of a group of historic photographs purchased by the ABC Park Friends group and presented to the park with a Deed of Transfer of Rights on May 5, 1983.
- ◆ The following private home address for copyright holder should only be provided for serious inquiries about obtaining rights to re-use the image. Jane Doe, 1234 Pine Street, Littleton, MA 87654
- ◆ The physical location for the artifact in the image should not be provided to the general public due to security concerns. Direct inquiries to the park’s ABC Dept.

Image_Provenance

Optional
Repeatable
Free text

A history of the origin of the image dating back to its initial creation in digital format or film. The provenance documents how the image came to be in the control of the NPS in its current form, especially when it was not taken by an NPS staff member or contractor.

Images in their physical or digital form are often received due to partnerships, gifts, purchases, or "on loan" collections. Image_Provenance documents this complex history.

Examples:

- ◆ Photograph reported to have been taken in the late 1800s by James D. Smith. It was inherited by his daughter who gave it to her daughter, Annabel Davis who donated it to ABC National Park in the 1950s. The black and white print was scanned and saved as a digital image in TIF format by park staff in 2001.

Intended_Audience

Optional
Repeatable
Free text

The target audience, if any, for whom this digital photo would be most useful.

Examples:

Students, grades K-12.

Students, college-level.

Facility maintenance staff.

Vegetation biologists.

Genealogists.

NPS_Unit_Information

NPS_Unit_Alpha_Code | NPS_Unit_Name | NPS_Unit_Type | NPS_Organization_Code |
NPS_Unit_Previous_Code | NPS_Unit_Previous_Name | NPS_Parent_Unit_Code |
NPS_Parent_Unit_Name

Mandatory (NPS_Unit_Alpha_Code only)

Optional (all other elements)

Repeatable

Compound element (no data)

NPS_Unit_Information includes a cluster of metadata elements for providing the official names and various types of codes associated with park and programs. At the very least, the park code (NPS_Unit_Alpha_Code) should be provided if the image is related to a park in any way.

=> NPS_Unit_Alpha_Code

Mandatory

Repeatable through parent element

Controlled vocabulary

Stores the NPS unit alpha code which is the Park Code (e.g. YELL) and may also include codes for regions, networks, programs, and other NPS offices.

Lists of Unit Codes may vary between programs and information systems. To promote consistency and interoperability, it is recommended that you consult the official list of NPS codes maintained by the Office of the Chief Information Officer located at https://amoeba.nps.gov/AMOEBANPS_ORGANIZATIONCODES.NSF.

=> NPS_Unit_Name

Optional

Repeatable through parent element

Free text

Stores the NPS unit name which is the name of the park or program.

=> NPS_Unit_Type

Optional

Repeatable through parent element

Controlled vocabulary

Stores the NPS unit type, usually "Park" "Region" "Network" "Program" or "Office."

=> NPS_Organization_Code

Optional

Repeatable through parent element

Controlled vocabulary

Stores the NPS Organization Code which is a numeric code that is different from the alpha codes. There is no standardized list of NPS Organization Codes (Org Codes). Separate ones are maintained by the Natural Resources Program, the DSC Technical Information Center, and the Budget Office.

=> **NPS_Unit_Previous_Code**

Optional

Repeatable through parent element

Controlled vocabulary

Add the NPS_Unit_Previous_Code if the NPS_Unit_Alpha_Code has changed and you think that it is critical for the discovery of the image that the previous form of the code is included in the metadata record.

=> **NPS_Unit_Previous_Name**

Optional

Repeatable through parent element

Free text

Add the NPS_Unit_Previous_Name if the NPS_Unit_Name has changed and you think that it is critical for the discovery of the image that the previous form of the name is included in the metadata record.

=> **NPS_Parent_Unit_Code**

Optional if Place_Description is used

Repeatable through parent element

Controlled vocabulary

Add the NPS_Parent_Unit_Code if the park, program or other NPS office is considered an administrative subdivision of another NPS Unit and you think that it is critical for the discovery of the image that the NPS_Unit_Alpha_Code of the parent organization be included in the metadata.

=> **NPS_Parent_Unit_Name**

Optional if Place_Description is used

Repeatable through parent element

integer

Add the NPS_Parent_Unit_Name if the park, program or other NPS office is considered an administrative subdivision of another NPS Unit and you think that it is critical for the discovery of the image that the NPS_Unit_Name of the parent organization be included in the metadata.

Examples:

NPS_Unit_Alpha_Code: LINC

NPS_Unit_Name: Lincoln Memorial

NPS_Unit_Type: Park

NPS_Parent_Unit_Code: NAMA

NPS_Parent_Unit_Name: National Mall and Memorial Parks

NPS_Unit_Alpha_Code: NAMA
NPS_Unit_Name: National Mall and Memorial Parks
NPS_Unit_Type: Park
NPS_Unit_Previous_Code: NACC
NPS_Unit_Previous_Name: National Capital Parks - Central

NPS_Unit_Alpha_Code: REDW
NPS_Unit_Name: Redwood National and State Parks
NPS_Unit_Type: Park
NPS_Unit_Previous_Code: REDW
NPS_Unit_Previous_Name: Redwood National Park

Source_Information

Source_Description | Source_Digital_Location | Source_Physical_Location

Optional

Repeatable

Compound element (no data)

This section contains information about the original or source photo used to create the current digital photo. The Source may be physical, such as film, slide, or a photo print that was scanned. The Source could also be a digital image that was modified in some way to create a new digital image.

=>Source_Description

Optional

Repeatable through parent element

Free text data

Use for a physical and/or technical description of the original or source photo.

- **If the Source image was physical**, give its format and dimensions (e.g. 35mm color slide, 8" x 10" black and white photograph, etc.)
- **If the Source image was already digital**, provide a statement to that effect with as much detail as is known such as whether it was "born digital" or scanned at some point.
- **If the Source is unknown** because information about the original has been lost, provide a statement to that effect.

=>Source_Digital_Location

Optional

Repeatable through parent element

Free text data

The location of the original digital version of the photo which may be a server, or any type of storage unit ranging from CD-ROM to a hard drive.

The information should be complete enough that anyone associated with the particular park or program can find it.

If the Location information may only be viewed by NPS staff, you may choose to put this in the Internal_Comments element which does not display to the public.

=>Source_Physical_Location

Optional

Repeatable through parent element

Free text data

The location of the original physical Source photo which may include the building, room, shelf or cabinet where the physical photo, slide, etc. is stored.

The information should be complete enough that anyone associated with the particular park or program can find it.

If the Location information may only be viewed by NPS staff, you may choose to put this in the Internal_Comments element which does not display to the public.

Examples:

Source_Description: Original image was created in JPG format using Nikon CoolPix 5.1 megapixel digital camera with flash. This was rotated, cropped and adjusted for color and brightness and saved as a new image. The original image has been kept in its unaltered form.

Source_Digital_Location: Original image stored on park server in
c:\images\2005\fire\P000035.jpg

Source_Description: black and white 35mm film negative

Source_Physical_Location: Harpers Ferry Center, Anthony Hall, Room ABC, File Cabinet 17, Drawer 3

Source_Description: Current image is believed to have been scanned from a 35mm color slide, but details about the original slide and scan are unknown.

Related_Collection

Citation_Information

Title | Contributor | Information_Type | Publication_Date | Publisher | Other_Citation_Details |
Online_Linkage | Related_Collection | Related_Identifier

Optional

Repeatable

Compound element (no data)

The information identifying a larger work, grouping, series or collection in which the image or image set is included.

Images are often part of a collection that has been grouped together because of a common theme (e.g. wild flower images), project (e.g. Facilities Management asset inventory images) and/or responsible organization such as a park or program (e.g. Sequoia and Kings Canyon National Park images).

- An image may belong to either a collection of only images, or to a collection that has several information types such as reports, maps or data sets.
- Most image collections will only have the Title element and occasionally an accession number in the collection which is entered under Related_Identifier. Include the other elements if they are available, especially if the collection has been published.
- A digital photo often belongs to a “virtual collection” meaning that the *Related_Collection* => *Title* is what is used to group the images together.

=>Title

Mandatory if optional parent element is used

Repeatable through parent element

Free text data

The name or Title of the Related_Collection which may be a physical or virtual image collection or a collection of multiple types of resources.

=>Contributor

Name_Information | Role | Affiliation

Optional

Repeatable

Compound element (no data)

Includes the name of any person or organization that was responsible for the Related_Collection.

For instructions on how to complete the child elements, see *Descriptive_Information* => *Contributor* above.

=>Information_Type

Optional
Repeatable through parent element
Free text data

The information resource type of the collection. This will usually be Image Collection, or simply Collection when there are multiple information types.

=>Publication_Date

Optional
Not Repeatable
Free text data

The date that the collection was published in print or to the Web. A virtual collection usually has no publication date.

=>Publisher

Optional
Not Repeatable
Free text data

The name of the individual or organization that published the information resource being described.

=>Other_Citation_Details

Optional
Repeatable
Free text data

Other information such as note, comments, or description required to provide more information about the collection.

=>Online_Linkage

Optional
Repeatable
URL

A URL link to the Related_Collection being described.

=>Related_Collection

Citation_Information
Title | Contributor | Information_Type | Publication_Date | Publisher | Other_Citation_Details |
Online_Linkage | Related_Collection | Related_Identifier

Optional
Repeatable through parent element
Compound element (no data)

The information identifying a larger work, grouping, series or collection in which this Related_Collection is included.

Use this cluster if a digital photo belongs to a collection and that collection belongs to a collection and you feel it is critical to provide this information so that an end user can discover and interpret the digital photo. It is anticipated that this will occur very rarely.

Follow the instructions under `Related_Collection` to complete the child metadata elements.

=>**Related_Identifier**

Related_ID_Name | Related_ID_Value

Optional

Repeatable

Compound element (no data)

An identifier, such as a project, accession or record number that is associated with the `Related_Collection`.

Use if the digital photo is assigned a number in a collection, or if the whole collection is assigned a project, system or accession number.

For instructions on how to complete the child elements, see *Administrative_Information* => *Related_Identifier* above.

Examples:

- ◆ **Title:** Civil War Heritage Digital Collection
- ◆ **Title:** Virgin Islands National Park Digital Collection

Related_Resource

Citation_Information

Title | Contributor | Information_Type | Publication_Date | Publisher | Other_Citation_Details |
Online_Linkage | Related_Collection | Related_Identifier

Optional

Repeatable

Compound element (no data)

The information identifying another information resource to which this digital photo is related. Other information resources might include Web sites, reports, maps, drawings, before or after images.

For example, the current digital photo may be of a building and a Related_Resource may include metadata records for the architectural drawings of the building or a report on the history of a building.

It is recommended that only enough information is provided here so that the user can identify and discover the Related_Resource which is usually a Title and a URL (Online_Linkage) or a record or accession number (Related_Identifier).

=>Title

Mandatory if optional parent element is used
Repeatable through parent element
Free text data

The name or Title of the Related_Resource which may be another digital resource, physical resource or a Web site.

If the Related_Resource is a computer system, use *Descriptive_Information => Related_System*.

=>Contributor

Name_Information | Role | Affiliation

Optional
Repeatable
Compound element (no data)

Includes the name of any person or organization that was responsible for the Related_Resource.

For instructions on how to complete the child elements, see *Descriptive_Information => Contributor* above.

=>Information_Type

Optional
Repeatable through parent element
Free text data

The information resource type such as Image, Report, Web Page, Map, Data set.

=>Publication_Date

Optional
Not Repeatable
Free text data

The date that the Related_Resource was published in print or to the Web.

=>Publisher

Optional
Not Repeatable
Free text data

The name of the individual or organization that published the information resource being described.

=>Other_Citation_Details

Optional
Repeatable
Free text data

Other information such as note, comments, or description required to provide more information about the Related_Resource.

=>Online_Linkage

Optional
Repeatable
URL

A URL link to the Related_Resource being described.

=>Related_Collection

Citation_Information

Title | Contributor | Information_Type | Publication_Date | Publisher | Other_Citation_Details | Online_Linkage | Related_Collection | Related_Identifier

Optional
Repeatable through parent element
Compound element (no data)

The information identifying a larger work, grouping, series or collection in which this Related_Resource is included.

Use this cluster if the Related_Resource belongs to a collection and you feel it is critical to provide this information so that an end user can discover and interpret the digital photo.

The only child element that is likely to be used is Title.

Follow the instructions under Related_Collection to complete the child metadata elements.

=>**Related_Identifier**

Related_ID_Name | Related_ID_Value

Optional
Repeatable
Compound element (no data)

An identifier, such as a project, accession or record number that is associated with the Related_Resource.

Use if the Related Resource is assigned a number such as a project, system or accession number.

=> **Related_ID_Name**

The name of the organization, project, system that assigned the number.

=> **Related_ID_Value**

The number that was assigned.

Examples:

Title (of Record): Chesapeake & Ohio Canal, Catoctin Creek Aqueduct

Related_Resource => Title: Library of Congress, American Memory

Related_Resource => Other_Citation_Details: Web site with a fuller record and additional images

Related_Resource => Online_Linkage: [http://memory.loc.gov/cgi-bin/query/r?ammem/hh:@field\(NUMBER+@band\(md0687\)\)](http://memory.loc.gov/cgi-bin/query/r?ammem/hh:@field(NUMBER+@band(md0687)))

Title (of Record): Baptism recorded on 01/26/1744 in Guevavi

Related_Resource => Title: Mission 2000 database

Related_Resource => Other_Citation_Details: See full record in Mission 2000 database including links to personal names

Related_Resource => Online_Linkage: http://data2.itc.nps.gov/tuma/detail2.cfm?Event_ID=122

Related_System

Related_System_Name | Related_System_Short_Name | Related_System_Identifier |
Related_System_Link | Related_System_Description | Related_Contact

Optional

Repeatable

Compound element (no data)

Information on content in other NPS or non-NPS information systems that have a relationship to the current digital photo/metadata record –OR- are being linked to the current digital photo/metadata record.

For example, this metadata cluster could be used to link a record in NPS Focus with a record in PMIS, eTIC or the NR-GIS Data Store.

=> Related_System_Name

Optional

Repeatable through parent element

Free text

The formal name of an information system, such as Project Management Information System or List of Classified Structures.

=> Related_System_Short_Name

Optional

Repeatable through parent element

Free text

The short name, usually the acronym, used to describe a system such as PMIS or LCS.

=> Related_System_Identifier

Optional

Repeatable through parent element

Free text

An identifier, such as a project or record number that is used to link the current record to a specific record or group of records in the Related_System.

=> Related_System_Link

Optional

Repeatable through parent element

URL

A full URL used to link the current record to a Related_System.

=> **Related_System_Description**

Optional

Repeatable through parent element

Free text

Information on how/why the current record is related to the Related_System which may include a description of the Related_System and/or the purpose for the linkage.

=> **Related_System_Contact**

Contact_Information

Contact_Name | Contact_Position | Contact_Address | Contact_Voice_Telephone |

Contact_TDD/TTY_Telephone | Contact_Facsimile_Telephone | Contact_Electronic_Mail_Address |

Hours_of_Service | Contact_Instructions

Optional

Repeatable through parent element

Compound element (no data)

The contact information for the person or organization responsible for the Related_System.

Since current information about NPS system contacts is maintained by the NPS Office of the Chief Information Officer (OCIO) and is available from the top page of InsideNPS, it should only be included here if:

- This is not an NPS system and current Contact Information is not maintained by the NPS OCIO.
- The metadata record will be shared with someone who will require this Contact_Information and will not have access to it through NPS or other channels.
- Your office is committed to keeping this information current over the coming decades.

For instructions on how to complete the child elements, see *Administrative_Information* => *Contact_Information* above.

Examples:

Related_System_Name: Facility Management Software System

Related_System_Short_Name: FMSS

Related_System_Identifier: 71952

Related_System_Name: List of Classified Structures

Related_System_Short_Name: LCS

Related_System_Identifier: 8732

Related_System_Link: <http://etic.nps.gov/docsetdetails.aspx?docid=276924>

Related_System_Description: Visit <http://eTIC.nps.gov> for digital images and more info:

Related_System_Name: Civil War Soldiers & Sailors System

Related_System_Link: <http://www.itd.nps.gov/cwss/>

Coded_Metadata

[Coded_Metadata_Source](#) | [Coded_Metadata_Content](#)

Optional

Repeatable

Compound element (no data)

This provides a holding place for imported metadata that can not be parsed, or, for whatever reason, is not being placed in other elements. This could hold an entire XML file or be a dump of metadata stored inside an image such as IPTC metadata.

=>Coded_Metadata_Source

Mandatory if optional parent element is used

Repeatable through parent element

Free text

The name and/or description to identify the system, file or other source of the coded metadata.

=> Coded_Metadata_Content

Optional

Repeatable through parent element

Free text

The coded metadata that is imported into the system.

Examples:

Coded_Metadata_Source: IPTC legacy metadata extracted from image using Adobe PhotoShop ver. 7.0

Coded_Metadata_Content: Dedication ceremony of Flight 93 memorial/John Smith/20050911/New York Times/1234 Pine Street/Chicago/IL/95472

Technical_Information

Mandatory if applicable

Not repeatable

Compound element (no data)

Technical metadata are those elements used to describe the technical specs of the digital image such as file size and format, resolution, pixel width and height.

When using the User Guide, you can identify the metadata under Technical Information by seeing this header at the top of the page.

NPS Digital Photograph Standard User Guide

Technical_Information =>

Image_Information

Image_Caption | Image_Description | Multiple_Image_Reference_Name_or_Part_Number |
Primary_Image_Technical_Information | Modified_Image_Technical_Information |
Thumbnail_Information | Change_History

Optional
Repeatable
Compound element (no data)

Image information is a cluster of information about a specific image.

If more than one image is being described on a metadata record, the ENTIRE Image_Information cluster is repeated for each image.

=>Image_Caption

Optional
Repeatable through parent element
Free text

A composed phrase that is intended to be used as a caption or photo credit when an image is published in a print or Web publication. This element is generally used when there are specific requirements due to licensing, copyright or other constraints of the text that must be published with an image.

Do NOT use this instead of the Title in Descriptive_Information section OR instead of the Image_Description below when two or more images are associated with a metadata record.

Examples:

- ◆ Photo provided courtesy of National Geographic. All rights reserved.
- ◆ Reuse of this image should credit: National Park Service Historic Photograph Collection.

=> Image_Description

Mandatory if applicable
Repeatable through parent element
Free text

When two or more images are associated with a metadata record, use Image_Description for each image to describe this particular image, e.g. north side of building, south side of building.

ALWAYS complete the Title element in the Descriptive_Information section even if this element is used.

Examples:

See examples under next element, *Multiple_Image_Reference_Name_or_Part_Number*.

=> **Multiple_Image_Reference_Name_or_Part_Number**

Optional

Repeatable through parent element

Free text

A unique part number or other key value to identify each image in a set.

When two or more images are associated with a metadata record, use *Multiple_Image_Reference_Name_or_Part_Number* for each image to identify it.

For example, if three images are associated with a metadata record, they may be called part 1, part 2, or part 3.

Examples:

Metadata record with two images. Image_Information cluster repeated for each image.

Descriptive_Information => **Title:** 54th New York Infantry Monument at Gettysburg National Military Park, July 2001

Technical_Information

=> *Image_Information*

=> **Image_Description:** North face

=> **Multiple_Image_Reference_Name_or_Part_Number:** 1

=> *Image_Information*

=> **Image_Description:** Close-up of plaque on south face

=> **Multiple_Image_Reference_Name_or_Part_Number:** 2

Metadata record with three images. Image_Information cluster repeated for each image.

Descriptive_Information => **Title:** Fire education at Petrified Forest National Park, Summer 2003

Technical_Information

=> *Image_Information*

=> **Image_Description:** Firefighter explaining engine and tools to students

=> **Multiple_Image_Reference_Name_or_Part_Number:** 1

=> *Image_Information*

=> **Image_Description:** Students posed before engine

=> **Multiple_Image_Reference_Name_or_Part_Number:** 2

=> *Image_Information*

=> **Image_Description:** Student being dressed in PPE

=> **Multiple_Image_Reference_Name_or_Part_Number:** 3

Primary_Image_Technical_Information

[Image_Data](#) | [Digital_Capture_Technical_Information](#) | [GPS_Capture](#)

Mandatory if applicable

Not Repeatable

Compound element (no data)

The primary image is the largest and best copy of the image available and is usually the one that is archived.

Sometimes the primary image can not be served over the Web because the file size is too big to load quickly or the file format needs to be changed (e.g. TIF to JPG; JPG to MrSID). A second copy of the primary image is created for delivery over the Web. This copy is called the Modified_Image_Technical_Information and is covered below. The “modified” image is visually identical to the primary image, but has a different file size and/or format.

[If the content of the primary image is modified by cropping, image editing or adding a permanent watermark, saved with a new file name, and both versions of the image will be kept, then there are now TWO images. The metadata record should reflect the existence of both primary images, by placing the technical information for each one in its own Image_Information cluster.](#)

Technical metadata may be embedded in the image.

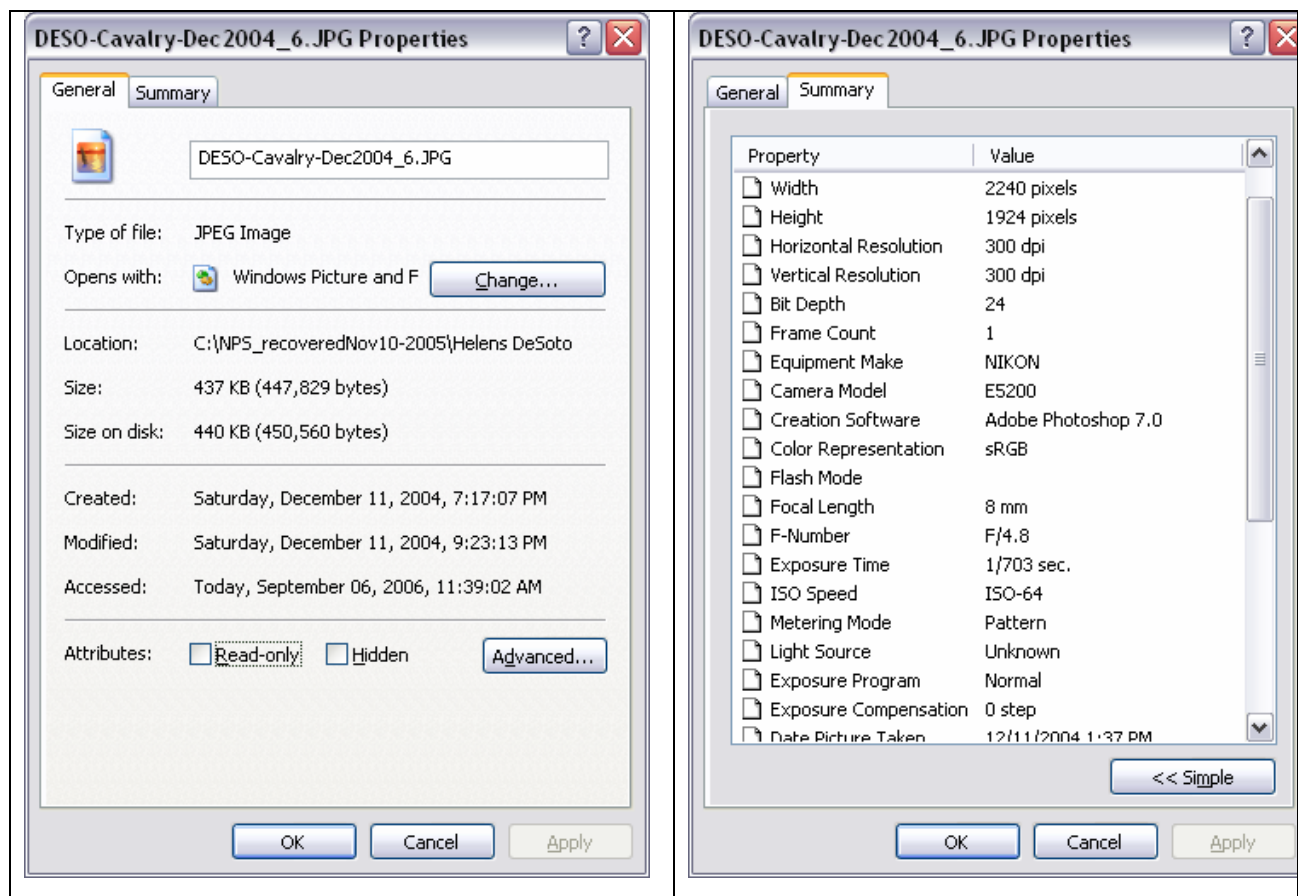
- **Image Header metadata** - Every image has a header where some basic information is kept such as the image size and file format. This technical information is automatically created and is part of every digital image whether it was created by a digital camera or scanning software. The section called Image_Data includes these elements.
- **Exif metadata** – Most images created by a digital camera have another container of information embedded into the image besides the header information. This includes details about the camera shot such as the camera model, F-stop, whether a flash was used, etc. These metadata elements come from a technical specification called Exif version 2.2 that is widely used by digital camera manufacturers. However it is not an open standard since it is not maintained by any national or international standards organization. The section called Digital_Capture_Technical_Information includes the Exif metadata elements.
- **Exif GPS Profile metadata** – Exif version 2.2 includes a separate profile for placing GPS information such as Latitude and Longitude coordinates into another container embedded in the image. Special software is required to automatically synchronize the information from a GPS unit with an image and then to view it or extract it. The NPS uses a software package called PhotoLink for this purpose. The section called GPS_Capture includes the Exif GPS Profile metadata elements.

- **IPTC, etc.** – There are several other specifications for embedding metadata into a container in an image such as the one used by newspapers created by the International Press Telecommunications Council (IPTC). NPS staff are advised not to use any of these since they are not interoperable with the other elements in this standard.

The technical metadata embedded in the image may be automatically or manually captured and added to a metadata record.

Viewing the Header and Exif data

1. Open My Computer or Windows Explorer
2. Click to browse through folders until the image file is located
3. RIGHT CLICK on the file name and choose Properties.
4. The General tab shows the file size and the Summary tab the pixel height/width, and digital camera Exif data if available.



Image_Data

[File_Name](#) | [File_Location](#) | [File_Type](#) | [File_Size](#) | [Compression](#) | [Image_Width](#) | [Image_Height](#) | [Resolution_Unit](#) | [X_Resolution](#) | [Y_Resolution](#) | [Bitdepth](#) | [Colorspace](#)

Mandatory if applicable

Not Repeatable

Compound element (no data)

Detailed technical metadata from the header of an image.

=> [File_Name](#)

Mandatory if applicable

Not Repeatable

Free text

The file name of the image including extension.

Examples:

CACO_ButterflyWeed_1243.tif
ROMO-Emeraldcompany-Sept2001.jpg
BIHO-867aff2367b642759683b270238fb772.jpg

=> [File_Location](#)

Mandatory if applicable

Not Repeatable

Free text

The drive and folder path indicating where the file is stored on a server, or other storage system. This may also be a unique identifier if a storage system uses this instead of folders for storage.

Examples:

C:\images\BIHO\PMIS\
<http://www.cr.nps.gov/museum/treasures/html/L/>

=> [File_Type](#)

Optional

Not Repeatable

Free text

The file format of the primary (e.g. original or source) file which is usually the copy that gets archived. Commonly used formats for digital photographs are: TIFF, JPEG.

=> **File_Size**

Optional
Not Repeatable
Free text

The size in bytes of the image file. This may be written as bytes, kilobytes, megabytes or gigabytes, etc. as long as the unit of measure is clear. Example a 7.28MB file could be written out as 728,860,431 bytes.

Examples:

875 kb
1.2 mb
18.9 mb
18,894,848 bytes

=> **Compression**

Optional
Not Repeatable
Free text

The compression scheme used to store the image data. Common schemes used for digital photographs are: Uncompressed, CCIT Group 3 1D, CCITT Group 3 2D, CCITT Group 4, LZW, JPEG Baseline Sequential, JPEG2000 Lossy, JPEG2000 Lossless.

Many NPS systems require that TIF images be uncompressed. Indicate this by "none" or leaving the element blank.

All JPEG images are compressed since compression is part of that format. Leave the element blank for JPEG images.

=> **Image_Width**

Optional
Not Repeatable
Free text

The width of the digital image, i.e. horizontal or X dimension, in pixels.

When image width and height are written together (3072 x 2048 pixels), the width is always listed first.

=> **Image_Height**

Optional
Not Repeatable
Free text

The height of the digital image, i.e. vertical or Y dimension, in pixels.

When image width and height are written together (3072 x 2048 pixels), the height is always listed second.

=>Resolution_Unit

Optional
Not Repeatable
Free text

Unit of measure used for X and Y resolution, usually inches (e.g. 300 dots per inch).

=> X_Resolution

Optional
Not Repeatable
Free text

The number of pixels per ResolutionUnit in the Image_Width, or horizontal direction. For older digital cameras, this is often 72 (DPI or dots per inch). For cameras manufactured in 2006, it is often 300 (DPI or dots per inch).

Note: The X and Y resolutions are usually the same in digital cameras and scanners manufactured recently. However, this was not always true of older scanners.

=>Y_Resolution

Optional
Not Repeatable
Free text

The number of pixels per ResolutionUnit in the Image_Length, or vertical direction. For older digital cameras this is often 72 (DPI or dots per inch). For cameras manufactured in 2006, it is often 300 (DPI or dots per inch).

=>Bitdepth

Optional
Not Repeatable
Free text

The number of colors possible with each pixel.

- 8 bit – black and white photographs
- 24 bit – digital camera images and many scanned images
- 36 or 48 bit – some recent model scanners allow this extra level of detail.

It is recommended that color images **not be higher than 24 bit** since the human eye is not capable of seeing any more color detail than this.

=> Colorspace

Optional
Not Repeatable
Free text

The color model of the image data. Common models used for digital photographs include: RGB, SRGB, CMYK, YCbCr.

Digital_Capture_Technical_Information

[Manufacturer](#) | [Model](#) | [Software](#) | [Date_Time_of_Original](#) | [Date_Time_Digitized](#) | [FNumber](#) | [Exposure_Time](#) | [Exposure_Bias](#) | [Subject_Distance](#) | [Metering_Mode](#) | [ISO_Speed](#) | [Focal_Length](#) | [Flash](#) | [Orientation](#) | [Compressed_Bits_per_Pixel](#) | [Shutter_Speed](#) | [Aperture_Value](#) | [EXIF_Version](#)

Optional

Not Repeatable

Compound element (no data)

Detailed technical metadata about the process used to capture the image by digital camera or scanner. This information is often automatically captured by digital cameras using a specification called Exif 2.2.

The Exif field names are provided to promote automatic data extraction. NOTE: Digital camera manufacturers may vary as to which Exif elements they capture and display and the display label they use with the Exif metadata element.

=> [Manufacturer](#)

Optional

Not Repeatable

Free text

The manufacturer of the digital camera OR scanner used to create the image, e.g. Nikon, Epson.

Exif 2.2 field name: Make

=> [Model](#)

Optional

Not Repeatable

Free text

The model name of the digital camera OR scanner used to create the image, e.g. E5200.

Exif 2.2 field name: Model

=> [Software](#)

Optional

Not Repeatable

Free text

Software used for this camera or scanner model.

Exif 2.2 field name: Software

=> **Date_Time_of_Original**

Optional
Not Repeatable
Free text

The date and time when the original image was taken. For a digital camera image, the date and time the picture was taken are automatically embedded into the image. The format is "YYYY:MM:DD HH:MM:SS" with time shown in 24-hour format, and the date and time separated by one blank character.

Exif 2.2 field name: DateTimeOriginal

=> **Date_Time_Digitized**

Optional
Not Repeatable
Free text

The date and time when the image was stored as digital data. For a digital camera, this is the same as the Date and Time of Original. For a scanned image, this is the date and time it was scanned. format is "YYYY:MM:DD HH:MM:SS" with time shown in 24-hour format, and the date and time separated by one blank character.

Exif 2.2 field name: DateTimeDigitized

=> **FNumber**

Optional
Not Repeatable
Free text

The lens f-number (ratio of lens aperture to focal length) used when the image was captured.

Exif 2.2 field name: FNumber

=> **Exposure_Time**

Optional
Not Repeatable
Free text

The exposure time used when the image was captured, recorded in seconds.

Exif 2.2 field name: ExposureTime

=> **Exposure_Bias**

Optional
Not Repeatable
Free text

The actual exposure bias (the amount of under or over-exposure relative to a normal exposure, as determined by the camera's exposure system) used when capturing the image, using APEX units.

Exif 2.2 field name: ExposureBiasValue

=> **Subject_Distance**

Optional
Not Repeatable
Free text

The distance, in meters, between the frontal plane of the camera lens and the subject on which the camera was focused.

Exif 2.2 field name: SubjectDistance

=> **Metering_Mode**

Optional
Not Repeatable
Free text

The metering mode (the camera's method of spatially weighting the scene luminance values to determine the sensor exposure) used when capturing the image.

Exif 2.2 field name: MeteringMode

=> **ISO_Speed**

Optional
Not Repeatable
Free text

The ISO Speed and ISO Latitude of the camera or input device as specified in ISO 12232.

Exif 2.2 field name: ISOSpeedRatings

=> **Focal_Length**

Optional
Not Repeatable
Free text

The lens focal length in meters used to capture the image.

Exif 2.2 field name: FocalLength

=> **Flash**

Optional
Not Repeatable
Free text

Specifies whether a flash was used in image capture.

Exif 2.2 field name: Flash

=> **Orientation**

Optional
Not Repeatable
Free text

The orientation of the image, with respect to the placement of its rows as it was saved to disk, e.g. normal, rotated 90 degrees CCW.

Exif 2.2 field name: Orientation

=> **Compressed_Bits_per_Pixel**

Optional
Not Repeatable
Free text

Information specific to compressed data. The compression mode used for a compressed image is indicated in unit bits per pixel.

Exif 2.2 field name: CompressedBitsPerPixel

=> **Shutter_Speed**

Optional
Not Repeatable
Free text

The shutter speed.

Exif 2.2 field name: ShutterSpeedValue

=> **Aperture_Value**

Optional
Not Repeatable
Free text

The lens aperture.

Exif 2.2 field name: ApertureValue

=> **EXIF_Version**

Optional
Not Repeatable
Free text

Exif specification version, usually 1.0, 2.1 or 2.2.

Exif 2.2 field name: ExifVersion

GPS_Capture

GPS_Version_ID | GPS_Longitude | GPS_Latitude | GPS_Altitude | GPS_Destination_Longitude |
GPS_Destination_Latitude | GPS_Destination_Bearing | GPS_Destination_Distance |
GPS_Map_Datum | GPS_Image_Direction | GPS_Date_Stamp | GPS_Time_Stamp | GPS_UTM_East
| GPS_UTM_North | GPS_UTMZone | GPS_DOP | GPS_Fix_Type

Optional

Not Repeatable

Compound element (no data)

Detailed technical metadata about the GPS and parameters used to capture the image.

=> [GPS_Version_ID](#)

Optional

Not Repeatable

Free text

The version of the GPS Intermediate Driver.

Exif 2.2 field name: GPSTVersionID

=> [GPS_Longitude](#)

Optional

Not Repeatable

Free text

The longitude in degrees of photographer's position. Positive numbers indicate east longitude.

Exif 2.2 field name: GPSTLongitude

=> [GPS_Latitude](#)

Optional

Not Repeatable

Free text

The latitude in degrees of photographer's position. Positive numbers indicate north latitude.

Exif 2.2 field name: GPSTLatitude

=> **GPS_Altitude**

Optional
Not Repeatable
Free text

The altitude, in meters, with respect to sea level of photographer's position.

Exif 2.2 field name: GPSTimeStamp

=> **GPS_Destination_Longitude**

Optional
Not Repeatable
Free text

The longitude in degrees of object being photographed. Positive numbers indicate east longitude.

Exif 2.2 field name: GPSDestLongitude

=> **GPS_Destination_Latitude**

Optional
Not Repeatable
Free text

The latitude in degrees of object being photographed. Positive numbers indicate north latitude.

Exif 2.2 field name: GPSDestLatitude

=> **GPS_Destination_Bearing**

Optional
Not Repeatable
Free text

The heading in degrees. A heading of zero is true north.

Exif 2.2 field name: GPSDestBearing

=> **GPS_Destination_Distance**

Optional
Not Repeatable
Free text

The distance from photographer to object being photographed.

Exif 2.2 field name: GPSDestDistance

=> **GPS_Map_Datum**

Optional
Not Repeatable
Free text

The geodetic survey data used by the GPS receiver.

Exif 2.2 field name: GPSTimeStamp

=> **GPS_Image_Direction**

Optional
Not Repeatable
Free text

The direction the photographer is facing when the picture is taken, e.g. N, S, E, W.

Exif 2.2 field name: GPSImgDirection

=> **GPS_Date_Stamp**

Optional
Not Repeatable
Free text

Indicates the date.

Exif 2.2 field name: GPSTimeStamp

=> **GPS_Time_Stamp**

Optional
Not Repeatable
Free text

Indicates the time as UTC (Coordinated Universal Time). TimeStamp is expressed as three RATIONAL values giving the hour, minute, and second.

Exif 2.2 field name: GPSTimeStamp

=> **GPS_UTM_East**

Optional
Not Repeatable
Free text

The Universal Transverse Mercator east coordinate.

Exif 2.2 field name: N/A (element added because it was being output from PhotoLink software)

=> GPS_UTM_North

Optional
Not Repeatable
Free text

The Universal Transverse Mercator north coordinate.

Exif 2.2 field name: N/A (element added because it was being output from PhotoLink software)

=> GPS_UTMZone

Optional
Not Repeatable
Free text

The Universal Transverse Mercator zone.

Exif 2.2 field name: N/A (element added because it was being out put from PhotoLink software)

=> GPS_DOP

Optional
Not Repeatable
Free text

The GPS DOP (data degree of precision). An HDOP value is written during two-dimensional measurement and PDOP during three-dimensional measurement.

Exif 2.2 field name: GPSDOP

=> GPS_Fix_Type

Optional
Not Repeatable
Free text

The type of GPS fix, either 2-D (only latitude and longitude, from three satellites), or 3-D (latitude, longitude, and altitude, from four or more satellites).

Exif 2.2 field name: N/A (element added because it was being out put from PhotoLink software)

Modified_Image_Technical_Information

Image_Data

Optional
Not Repeatable
Compound element (no data)

Sometimes the primary image can not be served over the Web because the file size is too big to load quickly or the file format needs to be changed (e.g. TIF to JPG; JPG to MrSID). A second copy of the primary image is created for delivery over the Web.

This copy is called the Modified Image and is covered in this section. The “modified” image is visually identical to the primary image, but has a different file size and/or format.

If the Primary Image is served exactly as it is with no change to size or format, leave this cluster of elements blank.

CAUTION: Do NOT use this element if the image has actually been changed by cropping, image editing or by adding a permanent watermark IF BOTH VERSIONS OF THE IMAGE WILL BE KEPT. These changes mean that a new Primary image has been created.

Examples:

- ◆ A TIF image can not be displayed over the Web without a special image viewer. So a copy or Modified Image is created in JPG format for Web delivery. The Primary Image in TIF format is archived.
- ◆ A JPG image is very large (1.2 MB and 2592 x 1944 pixels, 300 dpi). This is too large to fit on a Web page, will take a long time to load, plus at 300 dpi it has a higher resolution than most monitors can display. So a smaller copy is made that is 500 KB, 600x460 and 72dpi and the large Primary Image is archived.
- ◆ A JPG or TIF image is being served using a LizardTech image server which requires MrSID format. The Primary Image is encoded as MrSID and moved to the image server. The JPG or TIF primary image is archived.

Image_Data

[File_Name](#) | [File_Location](#) | [File_Type](#) | [File_Size](#) | [Compression](#) | [Image_Width](#) | [Image_Height](#) | [Resolution_Unit](#) | [X_Resolution](#) | [Y_Resolution](#) | [Bitdepth](#) | [Colorspace](#)

Optional

Not Repeatable

Compound element (no data)

=> [File_Name](#)

Mandatory if applicable

Not Repeatable

Free text

The file name of the image including extension.

Examples:

CACO_ButterflyWeed_1243.jpg

ROMO-Emeraldcompany-Sept2001.jpg

BIHO-867aff2367b642759683b270238fb772.sid

=> [File_Location](#)

Mandatory if applicable

Not Repeatable

Free text

The drive and folder path indicating where the file is stored on a server, or other storage system. This may also be a unique identifier if a storage system uses this instead of folders for storage.

Examples:

C:\images\BIHO\PMIS\

<http://www.cr.nps.gov/museum/treasures/html/L/>

=> [File_Type](#)

Optional

Not Repeatable

Free text

The file format of the Modified Image file. Commonly used formats for digital photographs are: JPEG or SID.

=> **File_Size**

Optional
Not Repeatable
Free text

The size in bytes of the Modified Image file which is usually much smaller than the Primary Image. This may be written as bytes, kilobytes, megabytes or gigabytes, etc. as long as the unit of measure is clear. Example a 500KB file could be written out as 500,000 bytes.

Examples:

875 kb
1.2 mb
364,725 bytes

=> **Compression**

Optional
Not Repeatable
Free text

The compression scheme used to store the image data. Common schemes used for digital photographs are: Uncompressed, CCIT Group 3 1D, CCITT Group 3 2D, CCITT Group 4, LZW, JPEG Baseline Sequential, JPEG2000 Lossy, JPEG2000 Lossless or MrSID.

=> **Image_Width**

Optional
Not Repeatable
Free text

The width of the digital image, i.e. horizontal or X dimension, in pixels. This is usually smaller than the Primary Image.

When image width and height are written together (640 x 480 pixels), the width is always listed first.

=> **Image_Height**

Optional
Not Repeatable
Free text

The height of the digital image, i.e. horizontal or X dimension, in pixels. . This is usually smaller than the Primary Image.

When image width and height are written together (640 x 480 pixels), the width is always listed first.

=>Resolution_Unit

Optional
Not Repeatable
Free text

Unit of measure used for X and Y resolution, usually inches (e.g. 72 dots per inch).

=> X_Resolution

Optional
Not Repeatable
Free text

The number of pixels per ResolutionUnit in the Image_Width, or horizontal direction. A Modified Image being served over the Web is typically 72 or 96 (DPI or dots per inch) since most monitors can not display a higher resolution than this.

=>Y_Resolution

Optional
Not Repeatable
Free text

The number of pixels per ResolutionUnit in the Image_Length, or vertical direction. A Modified Image being served over the Web is typically 72 or 96 (DPI or dots per inch) since most monitors can not display a higher resolution than this.

=>Bitdepth

Optional
Not Repeatable
Free text

The number of colors possible with each pixel.

- 8 bit – black and white photographs
- 24 bit – digital camera images and many scanned images
- 36 or 48 bit – some recent model scanners allow this extra level of detail.

It is recommended that color images not be higher than 24 bit since the human eye is not capable of seeing any more color detail than this.

=> Colorspace

Optional
Not Repeatable
Free text

The color model of the image data. Common models used for digital photographs include: RGB, sRGB, CMYK, YCbCr.

Modified Images are usually RGB or sRGB.

Thumbnail_Information

Image_Data

Optional
Repeatable
Compound element (no data)

Information about a thumbnail or browse graphic. (“Browse graphic” is a term used by the Federal Geospatial Data Committee’s CSDGM metadata standard for a graphic that provides an illustration of a data set.)

Some imaging initiatives create and store thumbnail copies of larger images. A thumbnail is a miniature copy of the image that is typically around 100 pixels in height or width.

Leave the elements in this cluster blank if software is being used that generates a thumbnail on the fly OR if no thumbnail is created.

=> [Image_Data](#)

[Thumbnail_File_Name](#) | [Thumbnail_File_Type](#) | [Thumbnail_File_Description](#)

Optional
Not Repeatable
Compound element (no data)

=> [Thumbnail_File_Name](#)

Optional
Not Repeatable
Free text

The file name including the file extension, e.g. *.jpg.

=> [Thumbnail_File_Type](#)

Optional
Not Repeatable
Free text

The file format of the thumbnail or browse graphic, usually JPEG.

=> [Thumbnail_File_Description](#)

Optional
Not Repeatable
Free text

A text description of the thumbnail or browse graphic.

Change_History

[Date_Processed](#) | [Processing_Agency](#) | [Processing_Rationale](#) | [Processing_Actions](#) | [Processing_Software](#)

Optional
Repeatable
Compound element (no data)

Information about changes or modifications to the image, when the image was saved as the same file and not as a new image.

=> [Date_Processed](#)

Optional
Not Repeatable
Free text

The Date or DateTime image was processed or edited.

=> [Processing_Agency](#)

Optional
Not Repeatable
Free text

The organization-level producer(s) of the processed image.

Examples:

Crowley Micrographics.

NPS Office of the Chief Information Officer, NPS Focus system administrator

ABC National Park, Natural Resources staff

=> [Processing_Rationale](#)

Optional
Not Repeatable
Free text

The rationale for image editing decisions or describes the trigger event for image migration.

Examples:

- ◆ This is part of a group of images that the NPS scanned from black and white photographic prints that was sent to Analog Imaging, Inc. in Sept. 2006 to have the picture quality improved. At present is large parts of the image are too dark to clearly see the content.

- ◆ A large batch project was conducted in Fall 2008 to migrate all JPG format images to JPG-2000 format in order to keep pace with changing Web technologies.

=> **Processing_Actions**

Optional
Not Repeatable
Free text

An ordinal listing of the image processing steps performed.

Examples:

- ◆ Images were rotated, if needed, and then the brightness and contrast were corrected. Each image was visually inspected and, if needed, sections of the image were lightened separately.

=> **Processing_Software**

Optional
Not Repeatable
Free text

The name of the image processing software used to edit or transform the image data, e.g. Adobe Photoshop.

Examples:

- ◆ Adobe PhotoShop, version 9.0
- ◆ Corel PhotoPaint, version 8.0

IV. How to Use This Standard for Collection-Level Metadata Description

The metadata elements in this standard can be used to describe a collection of images that could range in number from two to two thousand. The first step is to define a group of images that are **united by topic, time and place**. Here are some theoretical examples:

- ◆ Prescribed burn images taken at SHEN in the summer of 2006 – 1,250 digital camera images
- ◆ Vegetation monitoring of meadows images taken at SEKI in April 2004 – 465 digital camera images
- ◆ Visitors enjoying water recreation activities at CACO in Spring and Summer 1994 – 127 scanned 35mm slides
- ◆ Three day re-enactment of the Battle of Gettysburg in July 1998 – 246 images

A collection that is defined too broadly is likely to become a group of “lost” images in the sense that desired images can not be discovered, retrieved, and/or interpreted/understood.

For example, consider a collection of 1,000 images that are all images for ABC Park taken in 2005. The collection is likely to include pictures of staff, visitors, events, facilities, re-enactors, plants, animals, scenery, damage and disaster, construction projects, etc. It would be difficult for an end user to discover a specific image in such a large collection that covers so many topics. It is also unlikely that within a few years anyone (including the photographer) would be able to identify the content of all 1,000 images.

The key concepts to remember when creating a collection-level metadata record are: **discover and interpret**. The metadata record must empower an independent user to discover the images being sought AND to interpret them. To interpret an image means to understand its content and context. If a user can not interpret who or what is in the image, where and when it was taken and why, then this is essentially a “lost” image, or worse, a “lost” image collection.

The following Table provides guidance on how to apply some of the most frequently used metadata elements from the standard to a record for an image collection.

Metadata Element – FGDC Version	Use in Collection-level Metadata Record
Metadata_Access_Constraints	Indicate if the metadata record may be accessed by the public or if it is for staff only (or some other group).
Constraints_Information	Describe what restrictions there are, if any, on the access to or use of the image or the metadata. Restrictions are often made because of federal law or NPS policy regarding copyright, privacy or sensitive information.
Contact Organization	Who to contact for further information about these images or metadata. This will often be a particular division within a park. Before using a personal name, consider whether it will be possible to keep the metadata up-to-date in future years.
Title	Compose a title that is as specific as possible regarding topic, place and time while still covering the whole collection. Example: <i>Wildfires burning in the southern region of Sequoia and Kings Canyon National Parks between May and Sept. 2005</i>
Image_Content_Place	The geographical area where the images in the collection were taken. If it is likely that these images will ever be shared with another park or agency, you may wish to be complete: <i>State – County/City – Park name – Region within park</i>
Image_or_Set_Create_Date	The dates when the images were taken using a structured date: YYYY-MM-DD. Use 01 when the day and/or month is unknown. <i>(More specificity can be captured using the Image_Content_Date metadata element below.)</i>
NPS_Unit_Alpha_Code	Park alpha code, if there is one. Repeat the element if there are several park codes.
Size_and_Format	The quantity and digital format of the images in the collection. Size ranges may be included as well. Examples: 456 digital camera images (JPG format; most ranging between 1-2 MB in size) 56 scanned 35mm color slides (TIFF format; ranging between 18-32MB); and 112 digital camera low resolution images (JPG format; most ranging between 46K-500K)
Image_Content_Date => BeginDate => EndDate	A camera captures how a subject looked on a particular date, so the Image Content Date is the same as the date the picture was taken (on film or digitally). Use structured dates, YYYY-MM-DD. For example, a collection of Spring wildflowers may be: <i>Begin date: 2006-04-01 End date: 2006-06-30</i>
Information Type	Image collection
Abstract	One or more sentences or phrases describing the collection that answer the questions who or what, where, when, why and how. Who or what is depicted in the images, where were they taken and when, why were they taken (asset inventory, monitoring, documenting disaster) and how (by staff or contractors, by aerial photography, using camera synchronized with GPS unit, etc.)

Uncontrolled_Terms	String together a list of keywords or topical terms that describe the content of the images. Be both broad and specific. For example, for a collection of images on a prescribed burn, you might have: Prescribed burn ; fire management ; fire ecology ; white smoke ; firefighting equipment ; firefighters ; Aerial firefighting ; helicopters ; burn areas ; fire ignition ; drip torch fire ignition
File_Location	Where the digital images are stored. This may be a server or hard drive cage with folder path and/or the images may have been pressed to CD-ROM or DVD and stored somewhere. If there is both a primary and a back-up location, provide both.
Related_Identifier => Related_ID_Name => Related_ID_Value	Indicate if this collection of images has been assigned any type of number such as a catalog or accession number. <i>(If there is a need to indicate the number in another system such as a Facility asset number, PMIS number that applies to all of the images, use the metadata element: Related System => Related_System_Name and Related_System_Identifier)</i>
Contributor => Name_Information => Role	If the name of the photographer (or photographers) or scanning technicians is known provide LastName, FirstName. Add the Role element with: Photographer, Scanning technician, Image editor, etc. as appropriate.
NPS_Unit_Name	The full and official name of the park with no abbreviations.
Comments	This optional element provides a place for any adding any type of note or additional information that doesn't fit anywhere else.

V. The history of this standard

The idea of developing an NPS metadata standard for describing digital images was a natural consequence of the “FM Focus Project.” The FM Focus Project was a partnership to develop the standards, technologies, and best practices for image and metadata creation and management between Facilities Management, the GIS Program, the NPS Focus Digital Library and the NR-GIS Data Store.

The project sponsors decided that a fundamental building block for the project would be the creation of a digital photo metadata standard that would be compatible with the Content Standard for Digital Geospatial Metadata (CSDGM) developed by the Federal Geospatial Data Committee (FGDC) for describing geospatial data sets.

On April 13, 2006 an *ad hoc* group of National Park Service staff was convened consisting of representatives from different NPS digital imaging and metadata management initiatives. This group was called the Digital Photo Metadata Standards and Review Team (DPMSRT) and was charged with developing a comprehensive metadata standard that NPS staff could use for describing digital camera images.

The DPMSRT released its first draft of the standard for Service-wide comment on May 11, 2006. Based on staff feedback, two more revisions were circulated in July and August. The current version represents the final draft of the document.

Below is a list of the participants on the DPMSRT. They represent a broad range of park and regional office staff, cultural and natural resources programs staff and the Office of the Chief Information Officer.

Digital Photo Metadata Standards and Review Team

- Margaret Beer – Inventory and Monitoring Program
- Peter Budde – Project sponsor and NR-GIS Data Store
- Carl Chitwood – Web Content Management System
- Carol Cross – Rocky Mountain National Park
- Vel Decker – Cape Cod National Seashore
- Chris Dietrich - NR-GIS Data Store, CSU project leader
- Joe Gregson – Project sponsor and GIS Program
- Larry Jessen – Rock Creek Park and National Capital Regional Office
- Alice Newton – ANCS+ Museum Management Program
- Dennis Nagao – NPS - Denver Service Center - Transportation Division, Section Chief
- Helen Price – Project sponsor and NPS Focus Digital Library & Research Station
- Theresa Voellinger – Harpers Ferry Center Photographic Conservator
- Jannette Wesley – Denver Service Center, E-TIC
- Kendra Peel – Certified Project Manager
- Kass Evans – project staff / coordinator